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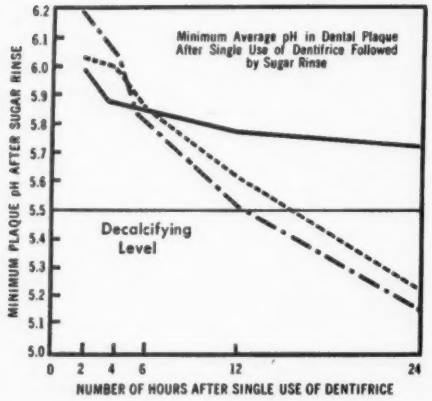

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JOURNAL OF DENTISTRY FOR CHILDREN

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from your president

The history of The American Society of Dentistry for Chidren indicates a remarkable achievement in growth and development. We have reason to be grateful for the leadership of our past Presidents. As each year has gone by, a new President inherited a larger, more active and more complicated organization. However, the need for further expansion is clear. Dentistry for children is unquestionably the only hope for improved dental health of the people of our country. We must, therefore, continue to stimulate present practitioners to join with us; our recent magnificent movement to enlist student members will prove to be a historic one. These neophytes in our profession must be integrated into our organization and its activities early in their careers and we must make it sufficiently interesting for them to remain with us throughout their professional lives.

This new maturity which we are experiencing is of great value to the entire profession, but it is expensive in terms of work, time, and money. It is my earnest hope that all of us will understand the importance of this expansion of our endeavors and that just as we have been willing to give more time to the activities of our organization so, too, will we be willing to increase our financial contribution.

Our dues must be raised adequately so that we can pay for our activities properly.

We must all work together with our new Executive Secretary, Dr. C. Frank Tuma, so that his office can make our organization operate more efficiently. We are glad that he has undertaken this task, and as we expect a great deal from him, we must give him greatly in terms of cooperation.

The New York Meeting appears to be developing as one of the greatest of our annual sessions and I look forward to greeting you all here in September.

HAROLD KANE ADDELSTON

News From Our New Executive Secretary

When The American Society of Dentistry for Children was organized in 1927, the founding fathers could never have fully realized what they had wrought. But they had planned with good vision and, with the aid of increasing numbers of foster parents, nurtured this fledgling through the Depression Thirties.

The Forties were its adolescence and found Al Seyler guiding the young JOURNAL OF DENTISTRY FOR CHILDREN, which soon became the standard reference for news and current scientific thought on dentistry for children. JOURNALS are today mailed to many good neighbors in Central and South America, to Australia, Africa, and Asia, and to Europe and Hong Kong where numerous subscriptions pass through the Iron and Bamboo Curtains to help bind mankind together with a fine common purpose.

The Fifties finds your Society in its early maturity. Dentistry for children is the finest movement and your Society is the fastest growing organization in dentistry.

Like the heavy snows of the winter, your new Central Office has been all but snowed under; confused and confounded by the old inherited records, weighed down with a deluge of new routine correspondence and the vast problem of renewing memberships and subscriptions, recording new members and subscriptions, recording and depositing monies collected, paying bills, maintaining the address stencil file, collecting for advertising in previous issues, and arranging for advertising in the current issue of the JOURNAL, addressing JOURNAL envelopes, etc., etc., etc.

On January 5 we picked up the total records of the Society in Baltimore and brought them to Cleveland. The loaded trunk and rear seat of our Roadmaster brought the frame down to the axle, and brought busy days to Cleveland. Without the help of my able wife, Alice, who has shouldered the avalanche of filing and maintenance of new and renewal address plates, making deposits and keeping the books, your new Executive Secretary might have quickly expired! Interesting but confining, it is like having triplets at our age. With the help of some capable volunteer friends, and encouraged by your many letters and good wishes and offers of help, we are beginning to see the light of day. Let it never be said that Cleveland lacks the "know-how" in dentistry for children.

While the business of the NEW CENTRAL OFFICE is essentially up to date, inevitably some details must have been missed in the process of getting acquainted with the vast new job. We beg your patience, and enlist your suggestions for the betterment of the Society or for the conduct of the business of the New Central Office.

State Unit business should, of course, continue to be sent to the State Unit Secretaries. National ASDC business should now be directed to:

DR. C. F. TUMA, *Executive Secretary*
The American Society of Dentistry for Children
13201 Miles Avenue
Cleveland 5, Ohio

Texas Talk—Dallas, 1958

Man! Texas is BIG! From the magnificent beauty of Love Field to the size of the convention itself, on to the wondrous, functional architecture of the elegant new Municipal Auditorium, everything is big. Men, steaks, women, hospitality—just plain BIG!

Seemed like people were always on the move. From the elevators to the registration desk to the meeting room—a constant flow of those interested in dentistry for children. Members were everywhere. Jack Eisenson, Colorado, O. L. Rice (with boots!), Alabama, Connecticut's gift, Naomi Dunn . . . People were talking, exchanging ideas, swapping stories. Ed Hibbard, head of pedodontics at Emory in Atlanta, Florida's charming Ellen Crockett, Maurine Bolton, Kentucky, D. C. Dicks, Indiana.

Dr. Michael Cohen, Tufts University in Boston, interrupted his interesting first-day lecture for the first coffee-break. Busy ASDC secretary Ralph McDonald was not too busy to shake hands and pass the time of day with all comers. H. J. Erickson, South Dakota, B. W. Gilbert, Illinois, Bernard Rabinowitch, California, taking time to refresh themselves with a "cup of Joe" . . . Dignitaries Walter McBride, Michigan, and John Brauer, North Carolina, listening attentively to the speaker . . . J. E. Torres (he has *10* kids—not patients—his own!), Texas, Sandy Pike, North Carolina, faithful Unit News correspondent Bob Bruchesky, New York, Georgia's hardworking distaff delegate Virginia Englett.

John Dawe, director of the Strong-Carter Clinic, all the way from Hawaii, accepting his Unit's charter, which had been granted 'way back in 1954, at the State's Delegates and General assembly meeting . . . most conspicuous at this session were the many delegates who must have gotten lost!

Sunday morning's Table Clinics saw the meeting room jammed. Everybody was everywhere. And one clinic was better than the next. A big doff of a big ten-gallon hat to all those who participated. W. M. Sharpe, Texas, busy handing out certificates to the clinicians . . . Dollie Woodall, C. T. Holcomb, Jr., B. C. McKinney, a Texas trio listening and looking . . . a pleasant hour spent in more talk with Sumter Arnim, Texas, and Dr. Betty, Illinois.

Time to get a breath of fresh air. George Teuscher and Norm Olsen, Illinois, had the same idea as did Emile Fisher, Georgia . . . Back at it again . . . more talk, talk, talk. A. K. Snyder, Connecticut, J. Plesofsky, Tennessee, J. B. Peabody, Texas . . . Pleasant chit-chat with R. J. Boller and I. H. Posnick during another of those welcome coffee breaks . . . Drs. Kopel and Album are ready to talk some more—in spite of those infernal, ineffective p.a. systems . . . Ruth Poole and J. S. Wolf, a Texas twosome.

President-elect (now, that is) Bill Brown, Michigan, Paul Weber, New Jersey, I. Voda, New Mexico all paying close attention.

Vic Lenchner, Florida, and Dave Law, Washington, exchanging pleasantries . . . Mode Perry, Bob Reed, Floyd Hogeboom, a collection of Californians . . . Jack Wells, Kansas City, capable Joe Kaufman, New York—and this could go on ad infinitum. But enough talk. It was a BIG meeting and a BIG time was had by all. You weren't there? Don't miss the next one!

TED LEVITAS

Newer Concepts of Drug Therapy and Dosage in Dentistry for Children*

THE subject of "Newer Concepts of Drug Therapy and Dosage in Dentistry for Children," is large. As moderator, I have asked the panel members to confine the material presented to that area of drug therapy in which the use is intended to lessen apprehension, tension, fear, and aid analgesia. Only a selected few of the drugs in this area will be discussed, based on their application, use, and acceptance in dentistry for children at present. Although there is a basic agreement on the subject matter among members of the panel and your moderator, there are also some interesting and stimulating differences. This situation should provide for an interesting question and answer period at the end of the presentation.

May I also point out that members of the panel will be following the subject assigned them. It may appear at times that we attempt to solve all patient management situations by medication. I assure you this is not so. We fully realize the great factor that the personality of the individual dentist plays in patient management. The attitudes toward dentistry for children exhibited by parents, physicians, and dentists in communities, vary greatly. The total environment before the child reaches the office for his dental appointment, the total environment of the office, a positive, reassuring attitude on the part of the dentist, and all other persons involved, is also important. Many other factors could likewise be listed.

We must no longer be content with eliminating pain in the area of the operative field. The patient must be treated at a total person. The dentist who does not take into consideration the emotional attitude of the patient before, during, and following treatment, and does not attempt to intelligently use all tools and aids available to him to make this dental experience as pleasant as possible, is not providing total or adequate dental care for his patients. The members of your panel sincerely believe in this philosophy. We ask that you give consideration to this philosophy and that you think progressively with us, with an open and unbiased attitude.

Advancements are being made in all areas of dentistry. In no area however, is progress being made more rapidly than in dental therapeutics. Dentists now can control apprehension, tension, fear, and pain for most patients.

Each year new and improved drugs are developed which are applicable to dentistry. Some serve specific needs, others serve a variety of needs. Because of this fact, dentists should now think in terms of *Balanced Medication*. A wide selection of drugs is available to us to use as premedication, co-medication, and post medication. The use of one often enhances the success of the other. Medication may be administered to aid the patient to achieve maximum comfort, both physical and mental before, during, and following most dental procedures. The type of pain which is not conditioned by apprehension, tension,

* Panel discussion presented at Annual Meeting, A.S.D.C. November 9, 1958, Dallas, Texas.

or fear can generally be adequately controlled by a local anesthetic, or by a variation of the dental procedure. Pain is most frequently affected by a variety of factors, and hence, each clinical pain situation must be considered individually. When a patient is apprehensive, tense, or fearful, it is difficult to overcome the problems simply. Neither is there a definite assurance of success. With a program of *Balanced Medication,* the probability of success is enhanced. The control of pain is an important part of *Balanced Medication.* However, the papers this afternoon shall discuss drugs which are primarily related to that area of *Balanced Medication* which aid in lessening apprehension, tension, fear, and aid analgesia. It is generally agreed that, ideally, first consideration should be given to treatment of cause, and that the secondary treatment should be palliative. Although, each is often necessary, we in dentistry are still most frequently required to provide palliative treatment, when it comes to tension, apprehension, and fear.

To provide this type of care requires a good understanding of a variety of drugs and a knowledge of the properties and the probable actions of each. For this purpose, Dr. Manuel Album, Dr. Hugh Kopel and your moderator will present papers and participate in a question and answer period. Each has been given a definite assignment. For our first paper, Dr. Manuel Album will discuss that area of *Balanced Medication* which has to do primarily with the Sedatives, the Analgesics, and the Belladonna Derivatives. Dr. Kopel will then discuss the ataraxic drugs.

Sedative, Analgesics and Belladonna Derivatives In Dentistry for Children*

MANUEL M. ALBUM, D.D.S.

PREMEDICATION for children in general has been discussed by the majority of the dental profession without any real understanding of the tremendous value that medication can be as an adjunct to our practice. Balanced, controlled premedication can enable the dentist to benefit the difficult and hard-to-manage child as well as the handicapped individual.[1]

The removal of apprehension will make the difference between a good and a bad child. Psychic trauma is lessened and you have a more relaxed patient and a less fatigued dentist.[2, 3]

One must realize in treating all children that there must be a different approach throughout. The normal child must be approached in another fashion as compared to the child with a handicap. Each child reacts differently and each youngster must attain his own level of medication. In the handling of the handicapped patient, we realize that the cerebral palsy child will not respond the way the mentally retarded child does.[4] Each instance must be approached with a complete understanding and knowledge of the existing situation.

As the above is a basic characteristic of drug therapy, so our analogy of drug dosage must be revised or looked at with a better understanding. Utilizing these facts we can formulate a triangle for successful premedication. Taking into consideration the above facts, the final leg in our triangle for the ultimate in premedication should be the knowledge and understanding of the various drugs used. We can now evaluate correctly the patient as well as to obtain the maximum in our results.

It should be stressed rather strongly that no longer can drug dosage be governed by Young's rule, Clark's rule and the like, with respect to children. Modification of adult doses can not hold true for a separate entity like a child. One individual is as different from the other as day is to night, and techniques applied to one will only bring disaster to the other. This holds true for medication as it does in performing major surgery. Our understanding therefore must be governed by the individual's total physiology and environmental factors. Dosage on a poundage basis can not be our determining factor. We in dentistry have been ruled too long by the pharmacologic aspect of drug dosage with its relationship to toxicity. What has been lost in our approach to drug therapy is the physiologic aspect of the individual body. Knowing the reaction of the physiology of the individual to various drugs and the excitement at hand can determine much in our success or failure with drugs and their dosage. The influence of adrenalin and nor-adrenalin output in the body can forecast accurately the outcome of medication with the patient. Cortisone complications can also influence premedication.

* Presented before the American Society of Dentistry for Children, November 9, 1958, at Dallas, Texas.

Our entire outlook on drug therapy must be determined by whether the dentist desires to have the patient on an ambulatory basis and to merely reduce the edge in apprehension; or whether complete medication is the answer. With both approaches, the parent should be present to assist the child home from the office. The understanding of the drugs must come first and then the drug dosage itself. We should know what each drug is capable of doing as well as its metabolism and excretion in the body. In this manner there will be less confusion and not an attempt by the dentist to achieve results where the very nature of the drug used contraindicates this supposition.

This paper shall be limited to the narcotics, the barbiturates, and the belladonna derivatives.

For one to obtain a balanced type of medication where there is control by the dentist over the medication used for a particular phase of dentistry, terminology must be carefully understood. Barbiturates like secobarbital and pentobarbital sodium are hypnotics and do little else other than produce sleep. They act by depressing the cerebral cortex and have no influence over pain factors. In the presence of pain however, hypnotics alone have their value reduced and the patient becomes upset and harder to manage.

Meperidine and morphine are narcotics and produce analgesia with a reduction in pain. Meperidine in addition depresses the parasympathetic endings and has a direct depressant effect on the muscles. In combination with the barbiturates, a synergistic effect is produced on the body. The hypnotic effect is enhanced and the pain influence is diminished or obliterated.

The belladonna derivatives like scopolamine and atropine produce an inhibiting action on the vagus nerve and in essence act as a control for the barbiturates. Scopolamine is a more powerful antisialogogue than atropine in addition to its having an amnesic effect.

A combination of the barbiturate, the narcotic, and the belladonna derivative will give us the key to balanced, positive medication, when we are interested in total or complete medication for the patient.

The basic fundamental in our usage of various drugs is not to produce a state of excitement. When this occurs, the general practitioner may consider his medication to be a failure. A knowledge of the physiology of the body will give us an insight toward better accomplishments. Children require greater amounts of depressant drugs per pound of body weight than adults. One should realize that in drug dosage with children we are confronted by growth patterns that they are experiencing. Between the ages of 2-10 years, the child shows the greatest advance in growth of his various body systems. This can be grouped as the brawn, blood, breathing, bladder and bowel, and nervous systems. From 10-15 years there is a levelling off, and the sex system has an opportunity to catch up with all the others. Consequently because of this growth factor in the child's background during this early age period, one can not adhere to formulas previously used. Children have unstable nervous systems, higher basal metabolic rates, and the hypotensive nature of their blood level is in contradistinction to the adult. Children therefore can be readily anesthetized as well as to become lightly anesthetized by the addition of oxygen to the gaseous mixture. Premedication works the same way. It should be realized that the more apprehensive the

child becomes, the less chance the dentist has for successful medication. Nor-adrenalin is set off which stimulates the hypothalamus. This reduces the threshold level of pain, and you have a youngster who is literally climbing walls. The increased output of nor-adrenalin and adrenalin stimulates the child and does not allow any medication to become effective. It is necessary to think in terms of a formula which will provide a sufficient dose to get them past the excitement period and yet present a balanced form of medication for complete medication as well as for the ambulatory basis. If one does not consider drug dosage with this in mind, he will only produce a failure or haphazard results. The starting dose for all children should be the same from 2 years and up. Each child must have a minimum to overcome this excitement period and then will seek his own level. Each child must be evaluated on the initial fact-finding visit dosage which will be described. Consequently, the dose to be sufficient to produce sleep in an adult is not enough to control the actions in a child, and will result in further irritation to the youngster.

Children with a handicapping condition may be on some related drug as an anticonvulsive and therefore may develop a tolerance or cross-tolerance to one particular barbiturate. This will produce a failure in medication results. Brain damage may also influence the amount of medication used, so that there might be a difference between a microcephalic and a hydrocephalic, as well as between a cerebral palsy patient and a true mentally retarded individual. In the latter case, there is a healthy body, somewhat over-developed, with no lack of muscular coordination. Here, average dosage schedules may mean little, and in some instances, a general anesthetic is the only form of treatment.

It is important that premedication be given to the child only when a parent is present. This is done to protect the child from injury following the completion of the dental work, and this rule is observed whether we are using complete medication or ambulatory medication. It should be remembered when using complete medication that the child be put to bed following his dental work and that the parent be informed the child will sleep for the remainder of the day or night. Each child reacts differently, and in the case of the mentally retarded child, the amount of sleep may be small compared to the normal child. By instructing the parent, the dentist will save himself embarrassment by being called in the wee hours of the morning and will reduce the apprehension in the parent. The parent should be informed that when the child awakens from his sleep, he will be extremely thirsty due to the dehydration present in the child, since he has gone for a long period of time without liquids. Unsteadiness is a reaction to watch and if the parent is aware of this, body injury will be reduced. Barbiturates as a rule, take from 24-36 hours to become totally excreted from the body. In the ambulatory patient, the patient is not asleep and the parent should be told about the possibility of falls because of the euphoric nature of the medication. The child should be kept at home until the drug has worn off.

Dosage for all patients undergoing dental treatment should be determined during the first visit of actual operative procedure by a preliminary trial. As mentioned earlier, an insufficient dose will result in overexcitement and the lowering of the threshold level of pain.

Consequently, the proper approach by the dentist and the correct patient evaluation will produce more effective premedication.

To obtain the best results in *complete medication,* it is necessary for one to begin with 2½ to 3 grains of secobarbital or pentobarbital sodium. When medication is given orally, secobarbital sodium is our drug of choice because of its shorter duration and because it does not produce as deep a depressive action as pentobarbital sodium. If oral dosage is not contemplated, the intramuscular injection is our method of choice. Pentobarbital sodium is then used because of its greater stability or shelf-life. This method of administration is becoming the accepted routine in our office more and more, since the incidence of vomiting is reduced. Medication to be successful should be given the first thing in the morning, on an empty stomach. Liquids of a clear nature are allowed up to 4 a.m. of the morning of the medication. Pentobarbital sodium can be prepared in concentrate form, so as to reduce the volume or quantity during injection.

One should remember if dentistry is contemplated involving more than just an examination or roentgenograms, it becomes imperative that we use meperidine 25 mgm. for our analgesic effect. Morphine may be given if desired in place of meperidine. Scopolamine 1/300 gr. for children under 8 years and 1/150 gr. for older children completes our drug combination. Here we can now utilize a balanced complete medication for office dental procedures. Each drug enhances the other to produce our desired end result. Utilizing the dosage of the barbiturate mentioned will allow the child to go through a very small excitement period. This dosage does not produce any respiratory depression or vasomotor failure.

It has been unfortunate that the general practitioner has always associated toxicity with routine doses, instead of realizing that ill effects come about from suicidal doses taken by patients in fits of depression. Barbiturates under the dosage prescribed by the dentist, exhibit a wide safety range factor, and respiratory depression or vasomotor failure is rare.

Maximum efficiency for all drugs occurs within 45 minutes to an hour following administration. This is the time for dental procedures to begin. Should there be no reaction on the part of the patient within an hour and a half, and the child has received no effect whatsoever from the medication, it is necessary to give an additional dose of ¾ grain of the barbiturate plus 12.5 mgm. of meperidine. Within a half hour, you should obtain the desired medication effect. Should this not occur, and the mentally retarded patient might present this chance, at the next visit, the patient receives the combination of these two doses as the starting dose for medication. What you are doing is to give the child the minimum amount of medication needed and yet sufficient a dose to produce the result desired. The patient therefore receives only as much as he needs and no more. This minimum dose being sufficient to eliminate any chance of apprehension or excitement influencing the relationship of the physiology of the body to the pharmacology of the drug. The parent should be informed that medication might not be accomplished at the first visit, and that what the dentist is establishing is the child's own level of medication.

Ambulatory patients also cannot be thought of in terms of poundage per

dosage since the dosage must be sufficient to remove the child's apprehension and to allow the dentist the opportunity to work under little strain. *Dosage on a pound basis is not effective for ambulatory patients.*

Meperidine for ambulatory patients is given in an initial dose of 50-100 mgm. depending on the apprehension and age of the patient. This can be combined, if desired, with scopolamine or one of the mephenesin derivatives. Barbiturates alone are not effective since we will be producing pain in these children and if used, once pain is obtained, apprehension will remove the hypnotic effect of the barbiturate. For this reason, on ambulatory patients, barbiturates by themselves are of little value. It is far better to utilize the narcotics and the belladonna derivatives than the barbiturates.

Local anesthesia can and should be used in conjunction with medication when performing dental procedures. Very often, patients can be tapered off ambulatory medication with the end result being that only a local anesthetic is being used. Ambulatory patients are under good control, but one should remember that in the handicapped patient, only the very mild case can be given this type of medication. Tranquilizers require too long a build-up for effectiveness on an ambulatory basis, and for that reason are not effective on a one dose treatment. In the severely handicapped patient, we must therefore think in terms of complete medication to secure the best in care.

The true mentally retarded patient, quite athletic in appearance and in the age bracket of 10-16 years, will not always give the result one desires with the suggested earlier dosage. It may be necessary for complete medication to think in terms of an initial dose of 3-4 grains of the barbiturate with the other factors remaining constant. Where management is a factor, the parental administration of all drugs should be the method of choice. In our hands, chloral hydrate, paraldehyde, phenergen HCl and others produce little effect in the cases of true mental retardation.

With normal or handicapped patients, there are only two methods of administration for the drugs used. Either the oral route or the intramuscular method. The behavior problem and the severity of the handicap will determine the method of administration. Intramuscular injections should be given deep in the buttocks, since the barbiturate produces a burning sensation at the site of injection. The oral route should be the capsule form, either swallowed whole or incorporated in baby food. The elixir form of the barbiturate is valueless since it would require almost an entire glassful for the desired results. This would produce nausea and vomiting in apprehensive patients. The rectal use of suppositories is of little use because of the possibility of the medication becoming lodged in fecal matter and not giving true results.

Medication is simpler when given in the office under supervision of office personnel than to allow the parent to administer it at home. This is done for several reasons. First, the dentist knows whether the child has taken the complete medication or whether the parent is just telling the dentist the things he desires to hear. Secondly, parents may confer with pediatricians who are unfamiliar with drug dosage for children for dental procedures and prescribe far less than is really effective for the child. This of course does not hold true when the pediatrician has been trained or exposed in his hospital training with a

good understanding of drug medication for sedation. Thirdly, all children react differently and for this reason it may be possible to get a faster result with some children, and should the child be in transit at the time of the effectiveness of the drug, the vital starting time would be lost.

Drugs should not be given to children who have any upper respiratory infection. A quiet environment enhances the success of the medication and minimizes the postmedication effects. It should be understood that with premedication, vital reflexes such as swallowing are not impaired.

Medication for the ambulatory patient can be given at home by the parent under the dentist's direction.

Side effects from barbiturate therapy are in the form of capillary dilatation of the facial vessels and urticaria.[5, 6, 7]

The dentist should be familiar with the side effects of the drugs used as well as the vasopressor drugs and resuscitative apparatus needed. Should the occasion arise, and this is rare with the dosages used, maintenance of an airway is of prime importance as well as to give the patient oxygen.[8] Vasopressor drugs such as metrazol, picrotoxin, and megamide, can be used.[9] Depression that one sees in respiration is due to the action of the meperidine rather than the barbiturate. Antinarcotics such as nalline and lorfan will combat this depression.

Some newer drugs used in the ambulatory patient are Donnatol elixir and Anileridine. Donnatol elixir contains phenobarbital and atropine. It can be given to the child before he leaves home and will reduce the edge in his apprehension. More work is necessary to carefully evaluate this preparation. Anileridine is similar to meperidine, but contains an additional phenyl ethyl grouping. It is supposed to increase the potency by twice that of meperidine.[10] No toxic effects and few side reactions are reported. However with anileridine, the analgesic effect is reduced at the expense of respiratory depression. With meperidine, there is good analgesic effect and little respiratory depression in the doses used for medication of our dental patients.

Summary

The child being an entity in himself requires a finer approach to medication than the adult patient. For example, with very young children, the blood loss of one ounce is comparable to 1,800 cc. in a grown adult. Proportionately therefore, the approach must be different. Children show a basal metabolic rate much higher than the adult as well as unstable nervous systems. Their blood volume is on the hypotensive side with blood pressure readings being around 90/60 in the three year old child. These factors will influence drug dosage. Pain impulses produced in the child will bombard the somesthetic system, lowering the threshold of pain level in the child. This in turn will awaken the arousal system and stimulate the hypothalamus, producing a fight or flight reaction in the child, as well as to change blood pressure readings. The area of association in the brain can also involve the somesthetic system which again involves the hypothalamus, the arousal system, and a response to pain. This can be illustrated by the patient who, though completely anesthetized in the chair, still feels pain and only when the environment is changed does he notice the total feeling of anesthesia. For this reason it is necessary that dosage be of sufficient strength to provide the minimum amount of excitement in the child and

sufficient enough to give us the desired results. Adherence to old formulas or poundage-weight basis is not sufficient to overcome the apprehensive child. He must have a dose in keeping with the growing systems of the body.

The barbiturates are excellent hypnotics when used in combination with a narcotic and one of the belladonna derivatives to give a balanced complete medication. When used alone for the ambulatory patient, they are of little value since their hypnotic features are destroyed by any pain present. Meperidine is the narcotic of choice and its analgesic property is quite profound. Scopolamine is used in preference to atropine sulfate because it is a more efficient antisialogogue, produces amnesia, and has sufficient vagal inhibitory action. Atropine has analeptic tendencies and will awaken the child instead. The hyperkinetic effect seen sometimes with scopolamine can be overcome by giving the patient a barbiturate. This reaction is rarely seen when using controlled and balanced medication for the complete phase of treatment.

Conclusion

In evaluating the drugs used in practice, one finds that the best results are those obtained through drugs tried and tested thoroughly for so many years. The advantages and disadvantages are known completely and are at your finger tips. The important principle in drug dosage and medication is to combine the right drugs with the correct dosage to obtain the ultimate for the child patient. If this is carried out, afferent impulses will not be able to accentuate apprehension and you will have a satisfied, relaxed patient.

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The Use of Ataraxics in Dentistry for Children*

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THE search for the ideal in pre-operative sedation for dental care has been pursued for years. Until recently there seems to have been no uniformity in the technics of administration and dosages of popular sedative drugs. No method has been universally accepted, although many men who work with children have had their favorite drug combinations that appear to work well in their hands.

Sadove has said that pre-operative sedation of children is a problem of great importance for the psychic trauma consequent to anticipation of surgery may be as great a hazard to the patient as his original disease.

Most children who have had a happy home life, proper training and tolerable previous medico-dental experience, make satisfactory patients. But there is a certain percentage who arrive at the office maladjusted, apprehensive, or physically and mentally unable to cope with the situation that presents itself. Among this percentage we must also consider the normal child who may undergo a possible painful procedure.

The problem of pre-operative sedation in the dental office is more unique than pre-op sedation for general anesthesia and subsequent surgery. Ideally, we are desirous of obtaining calmness with no anxiety and the ability to tolerate some pain without a violent reaction if it should occur.

Most previously described drugs that produce this effect may leave the patient with a long continued somnolence without awareness and ambulation is difficult. Some of these drugs in adequate doses can produce a pre-operative excitement, especially in brain damaged children.

The induced excitement period or the deep depression is seen most frequently with the short acting barbiturates such as Seconal® and Nembutal®. Also it is generally conceded that it is difficult to ascertain the correct dose of a barbiturate for a particular child to provide a predictable degree of sedation. It has become a recommended practice (Album[3] and Buckman[8]) to use more than the conventional dosages; thus while failures may be fewer, the incidence of side effects in the postoperative period is more likely to occur.

In this paper I would like to present a little of the background of several new drugs which offer the possibility of producing emotional composure and little or no apprehension, but will not produce the sleepiness and confusion characteristic of the depressant barbiturates.

Ideal sedation should adequately reduce preoperative psychic tension without concomitant depression of respiration and circulation. It should also promote the ability to respond but not overreact to stimuli as well as being devoid of nausea, vomiting or dizziness. This desirable sedative action has been termed "psychic sedation" by some authorities and "quiescence" by others.

In the dental office, for all groups of children, normal or handicapped, it would seem desirable to have (1) a true

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sedative, (2) a muscle relaxant, and possibly (3) an anticonvulsant. All of these states must be produced without any pre- or postoperative ill effects when used for comparatively short periods of time.

Within the past five years several new types of drugs have been developed which seem to be harbingers of a new era in sedation. Raginsky[27] mentioning the term "psycho-pharmacology" says that whether the term is warranted or not, there is no question that these new substances are a valuable addition to therapeutic resources.

The term, "Ataraxic" is presently applied to these drugs which have in common an apparent ability to reduce anxiety, agitation or emotional turmoil without putting the patient in a hypnotic state. Of the many articles which have appeared in the professional literature concerning the use of these tranquilizers, less than 20 or 30 have described their use in dentistry. The dental articles themselves, mostly describe the authors' empiric use and dosage. Very few actually are the results of controlled scientific investigation. Nevertheless these articles are of a value because they show that in some hands the ataraxics have been helpful to the apprehensive or fearful dental patient.

What are the ataraxics or tranquilizers? Basically these drugs are divided into two main categories. 1. Those which affect the autonomic system and 2. those which act on the central nervous system only, without affecting autonomic functions. Berger[6] has suggested that the two groups be called "autonomic suppressants and central relaxants." These two groups differ from each other, not in the intensity of action but in the effect they exert in their modes of action and fields of usefulness.

How do tranquilizers work? Most medical authorities admit the modes or sites of action are unknown. Theories on how ataraxics work on the brain are handicapped because the exact mechanism of the brain and neural paths is unknown. It has been suggested however, that the ataraxics which affect the autonomic system do so indirectly by upsetting the balance of the sympathetic and parasympathetic mechanisms originating in the primitive parts of the brain such as the hypothalamus and the ascending reticular formation. The tranquilizing drugs apparently influence the chemical mediators or act on the enzyme systems. The over-all effect is to tone down the state of hyperawareness or excitability often seen in the psychotic or even in normal individuals under a heavy emotional stress.

Likewise the action of the drugs affecting the central nervous system and not affecting the hypothalamic regulating centers is unknown. Again it is postulated that this category of the ataraxics has some effect in the synchronization of neuro impulses in the thalamus plus affecting neurons in the spinal cord to relieve muscle tensions. It should be pointed out that both categories have the ability to potentiate and intensify the action of the barbiturates and the narcotics.

For ease of presentation in this paper, the ataraxic drugs that have already been reported in the dental literature will be classified on a basis of chemical structure.

Before starting the discussion of the "tranquilizing" drugs, I would like to point out that the dosages described are more or less based on age and weight but not in proportionate amounts. Statements regarding the dosages of these drugs, which have appeared in

the medical and pharmaceutical literature need re-evaluation for dental usage. We must discard such dosage formuli commonly used for children such as Young's rule, Clark's rule, etc. The dosages can be modified towards higher levels to fit the individual cases.

Group I—Phenothiazine Derivatives

A. CHLORPROMAZINE (Thorazine—Smith, Kline & French)

This is one of the most frequently discussed ataraxics in the medical journals and one of the first to be used in dentistry. It has been found to have a diversity of beneficial actions and some untoward. It is used to control the psychotically disturbed, grossly assaultive, combative, agitated and restless behavior regardless of underlying etiology.

It seems firmly established that this drug can soothe the mentally ill in the acute or chronic stages of agitation. It has been used successfully as an antinauseant. Other useful actions have been applied in pre-operative care before general anesthesia as a sedative, an antisialagogue and to establish smoother autonomic functions. Chlorpromazine will potentiate other sedatives and analgesics.

The side effects definitely established may be untoward. It does show a hypotensive phenomenon, especially following injection. When used over a period of time (5-7 days), some more pronounced effects have been reported in a small number of patients. Jaundice, nasal stuffiness, drowsiness, a hypothermic effect and (rarely) a blood dyscrasia have all been mentioned. It has been admitted, however, in most reports that the side effects are manifested by prolonged use and usually subside if the medication is terminated promptly.

Bakwin,[5] a prominent pediatrician, reported on the uses of chlorpromazine in large groups of children. He confirmed the efficacy of chlorpromazine for control of vomiting, sedation, emotional disturbances, in cerebral palsy, chorea and hypertension. He also discussed the various side effects and pointed out that all cases of untoward side effects establish themselves only after 2-5 weeks of continued use.

In a double blind study, Adamson,[2] after 60 days of investigation with mentally deficient children, concluded that chlorpromazine was effective and predictable in reducing tension, self mutilation and aggressive behavior. The only side effect seen with 300-500 mgs. per day was drowsiness.

There have been but a few scientific studies directly related to the use of chlorpromazine in dentistry. Young and Kingsbury[37] did recommend that an oral dose given to children 2 hours before a general or local anesthetic allays apprehension. Hoffman,[13] in a very detailed investigation of 281 patients for 5 days, concluded that chlorpromazine caused a decrease in the demand for therapeutic pain relief following oral surgical procedures. No untoward side effects or toxic reactions were encountered in this study. Hoffman suggested that this drug might well be used to reduce edema and trismus, common postoperative sequelae in oral surgery.

Buckman[8] also used chlorpromazine in the dental care of both normal and mentally retarded children. He found certain degrees of success when he used a combination of chlorpromazine, meperidine and scopolamine given 2 hours before the dental appointment. Buckman, too, noted no untoward reactions in his child patients.

Sweet[32] recommended the use of chlorpromazine in problem children and said

that it has the added advantage of being an anti-emetic. He prescribed 12 to 20 mgs. for a 50 pound child.

Ehrlich,[9] however, concluded that chlorpromazine, 10 mgs. orally, had no effect on 15 normal children to reduce the anxiety level for dental examinations.

Sawusch[31] used chlorpromazine in a small group of emotionally disturbed children who presented for dental treatment. In this double blind study, either 25 mgs. or 50 mgs. were given about one hour and a half before coming to the dental clinic of the institution. Statistically, the chlorpromazine was thought to be ineffective, but Sawusch implied that the dosage schedules might be modified with better results.

Chlorpromazine or Thorazine®, is available in tablet, syrup and an injectible form. Side effects seem to lessen when the oral forms are used. While others have used it for apprehension in routine dental treatment, I personally would recommend it only for the severe emotionally disturbed child or for the extremely belligerent apprehensive child. Medication for these children may be started 2 to 3 days prior to the dental appointment on a basis of age and weight. For example, up to 5 years or 50 pounds, 10 mgs. 3 times a day may be given and for 5 to 12 years of age, 10 to 25 mgs. 3 times a day prior to the appointment. With the concomitant use of chlorpromazine, one quarter to one half of the recommended doses of barbiturates, meperidine or scopolamine is recommended, if they are used. When used in single doses for mildly disturbed cases, the chlorpromazine may be given orally 2 to 3 hours prior to treatment and followed with a reduced Demerol® -scopolamine combination 1 hour later. It would be wise to have the patient lie down and remain quiet for at least ½ hour after the initial administration to lessen the possibility of hypotension.

From a review of the literature, personal communications and personal experience, it appears that while many more controlled studies on the use of chlorpromazine in dentistry are needed, the drug can be considered safe and effective when used in recommended technics for a short period of time, that is, less than 5 days.

B. PROCLORPERAZINE (Compazine —Smith, Kline and French)

Compazine is another new phenothiazine derivative which has been recommended for mild to moderate emotional disturbances. It has been said to have fewer undesirable side effects than Thorazine, but the potentiating action is not at great.

Only one report in the dental literature has been found by this author describing the use of Compazine® for dental sedation. This study[11] was not of the double blind technic and the results did not appear to have statistical significance. The dosage in this study consisted of either a 5 mg. or a 10 mg. tablet given 45 minutes before the dental appointment.

Many more controlled studies will be necessary to determine the place of Compazine in dental premedication.

C. PROMETHAZINE (Phenergan— Wyeth)

Phenergan is an important phenothiazine derivative that deserves close study for dental sedation.

Promethazine is one of the most potent antihistaminic drugs known today. It is several times more active and has a more protractive effect than most of the histamine antagonists commonly

used. The compound has many pharmacological properties and as a result many clinical applications other than its antihistaminic use.

The pharmacologic actions of promethazine have been known and clinically used since 1946. It has been utilized in the management of allergic conditions, motion sickness, nausea, vomiting, and psychic sedation. There are many references in the literature to the use of this drug with little or no reports of serious side reactions. It has been known, though, to potentiate the effects of the CNS depressants.

Sadove[30] points out that promethazine produces a state of quiescence with little or no sign of interference with medullary functions and without respiratory or cardiovascular depression. He advises a premedication combination, particularly for general anesthesia, of Phenergan, meperidine and scopolamine.

Phenergan hydrochloride has had specific applications in the practice of dentistry. Blinderman[7] has given this drug as an oral premedicant to 150 ambulatory patients before extractions. He used it as an antihistaminic and reported excellent reductions in the usual incidence of postoperative pain, trismus and edema. Nathanson[21] used Phenergan to minimize gastric reactions to anesthetic agents and as a prophylactic agent against untoward drug reactions with penicillin. Moss's[23] results with Phenergan for control of edema and tissue healing following oral surgery are in agreement with Blinderman even though the latter used single doses prior to surgery.

I have been using Phenergan in my practice for pre-operative sedation with normal and mildly handicapped children. I do believe that I see the sedation and quiescence that Sadove speaks of. However, as with all sedatives, a child may "break through" this quiescence if pain is encountered. Therefore, in order to counteract this "break through" I use a combination of Phenergan and meperidine. I like to start the Phenergan at bedtime on the night before the appointment. For 2 to 5 year olds, two teaspoons of the elixir or 12.5 mgs. is prescribed initially. For older children, 25 mgs. or four teaspoons may be given. The same dosages are repeated in the morning about an hour before the appointment with the addition of 12.5 to 50 mgs. of Demerol depending on the size of the patient and the extent of the dental work.

I personally think that the use of Phenergan comes very close to the description of "psychic sedation" and that it has a place in the chemotherapeutic approach for working with apprehensive and mentally disturbed children.

Group II—Carbamate Derivatives

A. MEPROBAMATE (Equanil—Wyeth, Miltown—Wallace)

The one ataraxic drug which has been used in dentistry that falls into the category of a central nervous system relaxant is meprobamate. Commercially it is available under the names of Equanil and Miltown. Meprobamate is derived from mephenesin which is used primarily as a muscle relaxant. However, the meprobamate derivatives have been found to have a more prolonged relaxant action and its anti-convulsant properties are greater. Meprobamate does not suppress the autonomic nervous system and it is not noted particularly for potentiating the barbiturates. Berger[6] states that meprobamate selectively reduces exaggerated responses to stimuli and psychoneurotics do react to stress

by exaggerated responses. This has been confirmed by many other studies dealing with normal and abnormal patients. The abnormals include the frank psychiatric patients, rheumatics, neurotics and cerebral palsied. In fact, this is one of the ataraxic agents that probably has been investigated the most thoroughly in many well conducted investigations. Again, it has not been studied so completely in dentistry, but there are a few reports that can be used as a starting basis for information and discussion.

As with the other ataraxics, certain side effects have been reported but not with the frequency as observed with chlorpromazine. Drowsiness with continued therapy of meprobamate is the most common side effect. For our purposes in dentistry this might be desirable. The only serious side reaction reported is the rare occurrence of an allergic manifestation as characterized by a skin rash. Perlstein[25] studied 124 children with various nervous disorders and said that blood dyscrasias, skin rashes or gastrointestinal disturbances were not encountered. He observed that when meprobamate was effective, clinical changes generally began to show within 30 minutes reaching a maximum in one to two hours and tapering off at the end of four to six hours. Litchfield,[17] in a study of 28 cases of disturbed or prepsychotic children, concluded that meprobamate is a drug of choice in the treatment of a wide variety of children of all ages manifesting prominent symptoms of anxiety and tension who are seen on an ambulatory outpatient basis.

Livingston and Pauli[18] administered meprobamate to 128 children with a history of epilepsy and found that one of the greatest advantages of meprobamate is the apparent complete freedom from untoward side actions in long term medication.

According to the dental literature, meprobamate has been used mainly for the relief of anxiety states and tension in all types of dental procedures. Wilson and Parker[36] found meprobamate particularly useful in conditioning the dental patient for the acceptance of a new prosthetic appliance. The dosage in this study for adults was 400 mgs. four times daily.

Lefkowitz[15] gave 200 patients over 18 years old, who were undergoing operative procedures, 400 mgs. of meprobamate three times a day prior to their dental appointments. The patients were classified excitable, apprehensive and normal or phlegmatic. The study attempted to reclassify the patients of the first two categories into the latter categories by the use of meprobamate premedication. Lefkowitz concluded that in view of the encouraging results obtained in this preliminary study, further evaluation of this therapeutic regimen would seem desirable.

Lund and Anholm[19] worked with 39 patients who were being treated for a variety of dental procedures. Thirteen of these patients were children; one was a behavior problem, one a neurotic, one undergoing . psychiatric treatment and one was of a subnormal mentality. These investigators gave the older children 400 mgs. of meprobamate the night before the dental appointment and 400 mgs. one to two hours before operative procedures. One 3½ year old was given 200 mgs. on the same schedule. They reported that 32 patients or 82 per cent became excellent to good in the reception of dentistry and also stated that meprobamate is a valuable adjunct to the dental practice.

The initial and usual adult dose of

meprobamate used by most operators has been a 400 mg. tablet administered 3 to 4 times daily prior to the dental appointment. Children apparently tolerate meprobamate therapy well although the large tablet makes administration difficult. The recommended starting dose in children three years of age and older is 200 mgs. given 2 to 3 times daily. This dose may be increased up to the adult dosage as necessary to obtain the desired clinical effect. Especially would this be true in giving meprobamate to the cerebral palsied children to secure muscular relaxation as well as "tranquilization." The tablets may be crushed and mixed with jam or taken in flavored syrups when difficulty in swallowing the whole tablet is encountered.

For the normal but anxious and tense patient, the medication schedule of Lefkowitz appears rational. For the physically handicapped child, the schedule might be started 2 or 3 days prior to the dental appointment in order to obtain the benefits of muscular relaxation.

B. ETHINAMATE (Valmid—Lilly)

While ethinamate is reported to be an effective sedative-hypnotic unrelated to barbituric acid and unlike any premedicant currently available, its chemical structure would classify it as similar to the mephenesin derivatives. In man, it rapidly produces central nervous system depression but with the shortest known duration of action among oral hypnotics. No evidence of damage to any organ or system has been reported. In the usual dose, 500 mgs., it has no specific effect on blood pressure, pulse rate or respiration.

In one controlled double blind study, Redish and Ping[28] observed 212 subjects prior to oral surgery and recorded both the patient's response and the investigator's evaluations. The data showed statistical significance as to the beneficial effects of the ethinamate tablet which was given 20 to 30 minutes prior to the oral surgery. No side effects were noticeable.

It therefore seems that this non-barbiturate sedative-hypnotic bears much further investigation for use in operative phases of dentistry in children.

Group III—Miscellaneous

A. HYDROXYZINE DIHYDROCHLORIDE (Atarax—Roerig)

One of the most popular ataraxic agents used by the medical profession for calming children has been "Atarax." This tranquilizer is chemically unrelated to any of the previously described drugs.

Hydroxyzine is a piperazine derivative which has been shown to have a very low toxicity over long periods of time and is endowed with a potent antihistaminic action. It will produce a calming effect in an appreciably short period without apparent depression of the normal functions of the central nervous system. According to some animal studies, it will induce a degree of muscular hypotonia in relatively small doses. It is believed that Atarax will potentiate the barbiturates and meperidine. Atarax has also been shown to be relatively free of side effects. The duration of full effectiveness is at least 1 to 2 hours which will provide ample time for a dental appointment.

Ayd,[4] a psychiatrist at Johns Hopkins, advises that Atarax may be of definite value in neurotic children and hyperkinetic brain injured children. Nathan[20] used Atarax syrup in 58 children manifesting a variety of emotional disturbances and behavior problems and concluded that this preparation is indicated

on an individualized basis as an adjunct to control disturbed children.

Ayd suggested larger doses than usually recommended to achieve the desired goal in hyperkinetic behavior, but said that single or repeated doses of 25 mgs. orally a few hours before the advent of dental work will usually suffice to alleviate anxiety. He stated that a few severely disturbed children are benefited by less than 75 to 100 mgs. daily. It is best, he said, to start children under 6 years on Atarax syrup in doses of 50 mgs. per day. In older children, 25 mgs., 2 to 3 times daily may be used until the therapeutic level is reached.

Abramson,[1] an oral surgeon, recently studied the effect of Atarax as an adjunct to local anesthesia. Two hundred fifty cases were selected and the Atarax used in either 10 mg. or 25 mg. doses. The dosages were determined according to the apparent requirements of the individual, but 25 mgs. was the usual amount given 45 to 60 minutes prior to the appointment. Abramson concluded that Atarax is a valuable adjunct to complement local anesthesia and is a calming agent. The only noticeable side effect was dryness of the mouth.

Grauer[10] evaluated the effects of Atarax medication in 42 patients and found the desired effects in an average of 10 minutes after administration of the syrup. Lampshire[14] reported on the use of Atarax in both the oral and parental forms as a pre-operative sedative for children. Fifty mgs. were given one hour before the dental visit. He is very enthusiastic about the possibilities of this drug in dentistry for children.

Personal experience agrees with Lampshire on the use of Atarax in the apprehensive and emotionally disturbed child. Generally, I start off with 3-5 teaspoons, at bedtime the night before and the same amount about one hour before the appointment. I have been very satisfied with the results obtained with Atarax, especially in the "high strung" or emotionally disturbed child. More controlled studies with this ataraxic are definitely needed to find its exact usage in pedodontics.

B. PHENAGLYCODOL (Ultran—Lilly)

There is one other central nervous system depressant classified as an ataraxic that has been suggested recently for use in dentistry. Phenaglycodol or "Ultran" is a new neuro-sedative chemically derived from a group of butanediols which have a distinct tranquilizing effect when administered to animals and humans. In animals, it has been determined that Ultran has properties in common with other interneuronal blocking agents such as mephenesin. Drugs of this type can be expected to have some degree of muscle relaxing properties.

The Lilly Company states that the use of Ultran is desirable in patients with emotional instability and anxiety tension states.[16] Ultran is apparently free from undesirable side effects and has a wide margin of safety when used over long periods. It is suggested that the use of this mild ataraxic appears to be particularly suited to the patient who is about to undergo a long range restorative program covering a period of weeks or months.

There is definitely not enough evidence on the activity of Ultran to recommend it for use in dentistry except on an investigative basis.

Discussion on the Use of the Ataraxics in Dentistry for Children

In a recent survey,[35] the statistics being unpublished, 44.5 per cent of the

dentists questioned, replied in the affirmative regarding the use of tranquilizers through prescriptions for postoperative sedation and for highly nervous patients.

In 1957, the Council on Dental Therapeutics of the American Dental Association, in preparing the 1958 Accepted Dental Remedies, took a much more conservative attitude towards ataraxic agents in dentistry. Dr. Lon Morrey, the editor of J.A.D.A., quoted the Council on the use of these drugs, "evidence in support of the safety and usefulness of tranquilizing agents is not sufficiently conclusive to permit evaluation." Dr. Morrey also cautioned dentists to ascertain if their patients are taking one of the tranquilizing agents before superimposing another sedative as it might compound the patient's central depression with serious results.[22]

Ostrander,[24] a member of the Council, warned in April of 1957 that while ataraxics appear ideal in the premedication of dental patients, it is becoming evident that they have unpredictable and often serious side effects. Further study is necessary, he said, to define their area of usefulness in dentistry.

Harris,[12] a professor of pharmacology in a dental school, definitely opposes the ataraxics in dentistry at this time. While he admits that the ataraxics do not cause the metabolic depression of the barbiturates, he questions that ataraxics can do as much for the apprehensive mentally well patient as they might do for the real mentally ill. He also pointed out that a drug such as chlorpromazine emphasizes the adrenolytic effect causing a hypotension which may be further accentuated by the administration of epinephrine.

Harris further stated that the ataraxics would seem to require prolonged administration for beneficial action, a procedure hardly justifiable for a half hour appointment once a week when there are dangers through certain side effects. He concluded at the time of his report, the ataraxics may not be properly used in ordinary dental situations.

It is difficult to reconcile the warnings of the opponents to the use of the ataraxics in dentistry for children with the facts of the numerous cited studies dealing with these agents. The main objections to the ataraxics have been: 1. its prolonged medication to attain a therapeutic level, and 2. its untoward side effects. The investigation of the literature does seem to override these objections when the ataraxics are used in moderate recommended doses over a shorter period than commonly used in medicine or psychiatry. Of course the infrequent possibility of side effects does exist, but is this not true of most drugs that are used systemically in medicine or dentistry?

Some of the fears of untoward side effects that have been mentioned may be hypothetical or so very rare. For example, the hypotensive effect of chlorpromazine is definitely recognized and that it can be corrected with Levophed. In a study of 1,100 oral surgery cases, Rosencrans,[29] never found it necessary to use Levophed, although he warned that Thorazine should not be used in patients with high, low or labile blood pressures. Cases of hepatitis, skin rashes or eosinophilia may appear after 2 to 3 weeks of administration and are not a consideration when chlorpromazine is used for a few doses.[29]

Harris[12] himself, posed a hypothetical question when he asked if a patient on chlorpromazine may be safely given a local anesthetic-vasoconstrictor mixture. There have been no reports as yet in the

dental literature to answer this question.

It must be admitted that most of the reports in the dental literature on the use of ataraxics have been of a subjective nature. Very few double blind studies have been conducted. When Szymyd[33] conducted a study of this type, following the use of two different types of ataraxics, he noted no significant effect on post-operative oral surgical sequelae of pain, swelling or trismus. But, we should remember that here are to be seen definite organic findings. We dentists who work with children are seeking a non specific pre-operative tranquility that will allow us to present dental procedures without undue fear and apprehension to the child mind. What better findings can we have, than to have a calm and tranquil normal or handicapped youngster accepting our operative procedures when they have previously given management problems? Rabinowitch[26] who studied 89 emotionally disturbed children, said that on the basis of an empiric survey, tranquilizers may be another aid to the dental practice of children, but since evaluation is difficult, objective technics must be developed for further study.

In conclusion, based on personal observation and the published literature, I believe that at the present time, the ataraxics do have a place in dentistry for children.

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Balanced Medication

EARL L. LAMPSHIRE, D.D.S.

THIS paper will discuss the drugs used, basis for determining dosages, dosages, and the technics employed, in suggesting another program of balanced medication.

The drugs used in this program of balanced medication are Meperidine (Demerol), Hydroxyzine Hydrochloride (Atarax), Promethazine Hydrochloride (Phenergan), and Promazine Hydrochloride (Sparine). This technic of balanced medication has evolved from experience in which one or a combination of two or more of these four drugs has been administered over 2,000 times.

In determining dosages of drugs, the basis should be the type of child on whom the medication is to be used. Much consideration is given to his emotions and activity. Age is important only in that young children require extremely larger dosages than do older children and adults. To stimulate your thinking in this area, may I outline a usual dosage of drugs for an extremely hyperemotive two year old child.

75 mg. Meperidine
50 to 75 mg. Hydroxyzine
25 mg. Promethazine
25 to 50 mg. Promazine

This gives a large volume of solution. When administered intramuscularly the medication is divided. Using a 2 cc Luer-Lok glass syringe, one dose is injected into the right deltoid and one dose into the left deltoid, or in the buttocks. Although this dose may seem extreme, we have found it to be safe and very usable for this type and age dental patient.

Many classifications for child dental patients have been suggested. We have found the following classification helpful as an aid in determining proper dosages for a program of balanced medication.

1. TENSE COOPERATIVE—A large number of pedodontic patients fall into this category. This is a child who is tense, but nevertheless cooperative. Frequently, the busy dentist does not detect his tenseness. The necessary work is completed to the dentist's satisfaction, but not to the child's satisfaction. What does the child think about when he goes home? What does he tell his parents or his friends? What is his attitude prior to the next dental visit? These are questions which require careful investigation. Many tense cooperative patients may be relieved of their tensions by the aid of some form of medication.

2. OUTWARDLY APPREHENSIVE—This child generally is considered to be an acceptable patient. He may perspire a bit, hide behind mother, fuss slightly, or use stalling, but he does come in and eventually accepts dental treatment. As doctors, we have a responsibility to lessen the tension and apprehension of these patients if we have the means available. I believe in balanced medication, we have these means, safe, and ready for our use.

3. FEARFUL—This is a difficult area in child management. This patient requires understanding, explanation, reassurance, additional time from the doctor and other personnel, utilization of such aids as sound, color, odor, plus medication. This type of patient re-

quires a retraining program. It is seldom possible to solve all of the problems in one appointment. An attempt is made to establish rapport. Many other aids are then used to retrain the child to where he will become a good patient, and will look forward to a pleasant dental appointment.

4. STUBBORN OR DEFIANT—The stubborn child is annoying or irksome. He presents a passive resistance to direction. In general it might be said that he takes an unyielding, negative attitude, and in general gives the entire office personnel a rough time. The defiant child is in the same class yet slightly different because his action is bold and insolent. He presents a challenge in an aggressive, positive way. These children try techniques in their aggressiveness which they have found useful upon other people in getting what they like. Frequently this type of patient is an intelligent child. They may come from well educated families. They have learned that by using aggressiveness they can fool people and get what they want. Here is a situation where we must demonstrate to this patient that he cannot get by with this type of action. We have economic considerations in the office. Ways must be devised for caring for these situations which are economically feasible. It seems to me that the stubborn or defiant classification is the easiest of all to manage. It is here that firmness may be employed. Emotional shock therapy may also be helpful.

5. HYPEREMOTIVE—This type often is referred to as the problem child. He is the acutely agitated child. His hyperemotivity may take one of many forms, such as screaming, fighting, or kicking. However, his reasons for such action are different from that of the defiant child. This child often requires heavy medication.

6. HEART CASE—This is a special classification. Apprehension, tension, and anxiety are very important to this type of a patient. Some type of mild medication is used as a safety precaution where medical history reveals a heart involvement.

All of these types of children may be seen in the so-called physically and mentally normal child. They may also be seen in the physically and mentally handicapped, in which cases special consideration must be given. The intelligent use of balanced medication will permit many of these children to be cared for in the dental office. However, it is important to note that there are some who can best be cared for only in a hospital.

Another factor which is related to the type of patient is that of the emotional attitude of the person bringing the child for the dental appointment. This usually is the mother. It is sometimes advisable to provide the mother with some form of medication which she may take at home prior to the dental visit. Hydroxyzine is my drug of choice for this purpose. It is available in a variety of forms for home administration. A 10 or 25 mg. tablet is generally sufficient for a parent to take as a form of pre-appointment medication. The relaxed mother is more apt to bring a relaxed child to the dental office.

The following table may serve as a guide for dosage to each of the previously described types of patients.

Dosages for Balanced Medication

1. TENSE COOPERATIVE—If medication is planned in advance, the following medication may be administered at home:

Hydroxyzine tablets (25 mg)
Dosage: 1 tablet night before appointment PLUS
1 tablet an hour before appointment OR:
2 tablets an hour before appointment if very tense
OR:
Hydroxyzine syrup (10 mg/tsp)
Dosage: 3 teaspoons night before appointment PLUS
3 teaspoons an hour before appointment OR:
5 teaspoons an hour before appointment if very tense
If cannot medicate at home, medicate in office 30-40 minutes before appointment time using 25-50 mg. of hydroxyzine by tablet or syrup.

2. OUTWARDLY APPREHENSIVE—Dosage is the same as for the very Tense Cooperative OR:

Use the above plus oral co-medication with:

Meperidine 25-50 mg—OR:
Promethazine syrup 25 mg orally and Meperidine 25-37 mg co-medication—OR:
Meperidine-Promethazine combined and administered 1 M.
Dosages may be divided, i.e., one cc in each arm. Deep muscular injections are preferred. Subcutaneous administration may be irritating.

3. FEARFUL—Dosage will vary according to amount of emotion and activity. It will range from dosage for Tense Cooperative, to that necessary for the Stubborn or Defiant.

4. STUBBORN OR DEFIANT—Dosage will vary with patient's emotions and activity. Medication is the same as for Outwardly Apprehensive patient, with slightly increased dosage. The intramuscular route of medication may be indicated in a larger percentage of the cases.

5. HYPEREMOTIVE—Dosage if planned in advance:

Hydroxyzine tablets or syrup at home,
50-100 mg at night before appointment PLUS
50-100 mg one hour before appointment also Co-mediate orally or intramuscularly at offices with
Meperidine 25-60 mg PLUS
Promethazine 15-25 mg PLUS
Promazine 15-35 mg

If cannot treat at home:

The following medication may be administered intramuscularly as co-medication.
Meperidine 50-75 mg PLUS
Promenthazine 15-35 mg PLUS
Promazine 25-50 mg
Dosages may be divided, i.e., one half in each arm. Deep muscular injections are preferred. Subcutaneous administration may be irritating.
In extreme cases, the home medication and the office medication may both be used.

6. HEART CASES—As this is prophylactic, dosage will be similar to that for the Tense Cooperative or Outwardly Apprehensive.

As the above table indicates there is a variety of methods of administration available to us when using any one of the four drugs discussed here. There are advantages to each method of administration. It is varied according to the needs of the individual patient. Oral administration by tablets is frequently ideal. However, the action takes much longer and is less predictable than when the medication is administered intramuscularly or by co-medication with the local anesthetic. If the patient cannot swallow tablets, the syrup form may sometimes be used for oral administration. At present the trend of drug companies is to concentrate an average dose in one teaspoon of syrup. When this is accomplished, oral administration with syrup will be simplified. The use of intramuscular route of administration is frequently the method of choice

with children who are difficult to manage. The action is much quicker via this route. When oral co-medication, or intramuscular administration is used, the action is generally noticed within from 10 to 15 minutes after administration and the patient is ready for operative procedures shortly thereafter. The intramuscular route of administration is also helpful if it should be necessary to add additional medication when it is seen that the original dosage is inadequate.

Experience is a valuable aid to selecting proper dosage of drugs. It would be well to caution the inexperienced operator to not try his first medication on the Hyperemotive child. It would be well to start with the Tense Cooperative child for the first few cases, and then add to your program the Outwardly Apprehensive. Then try a few Fearful children before you try the Stubborn-Defiant child. Then finally, with experience, try balanced medication on the Hyperemotive child. Do not select the most difficult case for your first administration.

Dentists who frequently use a program of balanced medication in managing apprehensive, tense and fearful children find that it does work, and that experience seems to improve the effectiveness of the drug. The power of suggestion and a confident attitude on the part of the dentist are important. When the person administering the drug is tense, he may make comments which will suggest adverse side reactions. Frequently the patient will provide those types of side reactions. The dentist should have confidence in the procedure used and should not suggest possible side reactions. If balanced medication is used in an attitude similar to that which the dentist employs in using a local anesthetic, the results will be much more effective. Frequently the only advance information given to either the child or the parent is that you are going to administer a "hypo" to help the child relax.

Before the patient is dismissed, it is well to give instructions for home care to the mother. The parents should be advised that the child may be sleepy for a certain designated period of time, that they may be fussy, and that there is a possibility in some cases of nausea. The parents should keep close observation on the child however, until the effects of the medication seem to have completely left the patient.

Economic consideration of balanced medication should likewise be considered. Be careful in planning the appointment schedule. Time can be adjusted so that there need be no lost time in the dental office, from the above described dental program of medication. It must also be stressed that this is a valuable service you are rendering this patient, and an adequate fee should be charged. When a fair fee is established for your office, the fee may be considered when planning each case for which balanced medication is to be used.

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Summary

1. The panel is in complete agreement that a program of balanced medication is a desirable way in which to use drugs for premedication, co-medication, and post medication, as an aid in lessening apprehensive, tension, and fear, and in aiding analgesia.

2. We are also in agreement that dentistry can no longer accept Young's Rule or Clark's Rule as age for guides in establishing proper and safe dosage for drugs. They do not accomplish our needs and usually accentuate our problem. Dentistry is now establishing its own accepted and safe dosages for drugs used in dentistry for children.

3. Many drugs are now available to us for use in lessening apprehensive, tension, and fear. Many others will be made available to us in future years. The panel is appreciative of the work being done by the drug companies in this field. Most drug companies are now beginning to pay significant attention to the needs of dentistry.

4. Apprehension, tension, and fear are major problems in dentistry for children. A program of balanced medication is helpful in this area. We now have many drugs available, safe, and ready for use which can be and should be used by the dental profession.

Questions and Answers

1. Question directed to Dr. Album. Legally, what theory on dosage would be accepted if you had a fatality or near fatality? The question is based upon the fact that Clark's Rule or Young's Rule has been published in so many textbooks and accepted articles on medicine, dentistry and pharmacy.

Answer by Dr. Album. I feel that the outcome of a meeting like this, and certainly all of the literature that has been published in the last few years will reduce the belief that medication should be based on an age and weight basis. I believe, as I discussed during my earlier presentation, that today we must base our drug dosage on other factors than weight and age. Certainly this type of a meeting will reduce any basis for a legal complication that might arise from not following Young's or Clark's Rule.

2. Question for Dr. Kopel. When atarax syrup and phenergan syrup are used, how far ahead of appointment time should they be given?

Answer by Dr. Kopel. I would first ask, according to Lampshire's classification, what type of a child is involved? Not having a specific answer to this question, I would estimate that the syrup should be administered from 30 to 60 minutes prior to appointment time.

3. Question for Dr. Album. Have you used Ataractic drugs? And if so what is your opinion of them in comparison to the drugs which you have described?

Answer by Dr. Album. In answer to this I would like to comment on some notes I have made while listening to Dr. Kopel's paper. Referring to Bachman's study on pediatric patients, I feel it is not a fair example to use, because we are not really comparing children in dentistry. When we are using any of the ataraxics for an examination to re-

lieve apprehension, it might be fine. However, as soon as we do some type of a painful procedure I think that you are going to upset the patient, and upset the use of the dosages which have been advocated by pediatricians and most other studies. Therefore, I feel ataraxic drugs in most cases serve only as aids, and that a combination of drugs such as Dr. Lampshire suggested seems more advisable. It has been demonstrated with chlorpromazine that there is a definite delayed reaction time from the time the drug is administered until the effects are seen on a dental patient. Since it is quite unpredictable, this drug does not seem to have as many advantages as some other drugs and technics might provide.

4. Question for Dr. Kopel. Is there a general antagonistic drug for all ataraxics?

Answer by Dr. Kopel. I feel that the drug best indicated for this purpose would be Levophed. Discontinuance of the drug is generally the best treatment when side reactions are seen through administration of ataraxics.

5. Question for Dr. Album. What differences are there between using Meperidine with and without Scopolamine?

Answer by Dr. Album. Whenever you are using any medication you should try to accomplish as many purposes as you can. We know that Meperidine accomplishes an analgesic and antisialagogue purpose. We know that Scopolamine produces a threefold effect, namely an amnesia effect, an antisialagogue effect, and also an inhibitory effect on the vagus nerve. This is a good control when using barbiturates. I like to administer them together intramuscularly. It may be given either in the deltoid or the buttock muscle.

6. Question for Dr. Lampshire. With repeated appointments is medication decreased or often found unnecessary?

Answer by Dr. Lampshire. Yes, we think of balanced medication as a re-training program. It is frequently found that with each succeeding appointment you may lessen the amount of actual drug included, and yet you get similar results. Eventually a placebo may be used and in many cases to get good results. However, this is not generally true on the first few appointments. This leads us to possibly believe that there is a re-training value, and with each succeeding visit you may be able to decrease the dosage.

7. Question for Dr. Lampshire. Where, Dr. Lampshire, does the physically or mentally handicapped child fit into your classification?

Answer by Dr. Lampshire. It has been our experience that the classification of physically or mentally handicapped child is too general and indefinite. It covers such a large area. You can have physically handicapped children that are Tense Cooperative children, or you can have physically handicapped children that are Extremely Hyperemotive, or you can have the same thing in mentally handicapped children. In thinking of medication, we do not think of them as a special group because of their handicap. We still consider them as to types of children.

8. Question for Dr. Album. Do you use Dramamine to control nausea?

Answer by Dr. Album. This is a real powerful agent in the control of nausea.

9. Question. In the routine of administration of balanced medication have any of the panel members observed a serious side effect or complication?

Answer by Dr. Lampshire. This depends upon what we would call a serious side effect or complication. If we

think of nausea or drowsiness for a period of 48 to 72 hours as a serious side effect, I have seen one. I have seen a few cases nauseated for a period of 24 hours. I have seen patients where it may appear that respiration has been slightly slowed. However, I have never seen a case in which I needed any type of a medicament to counteract the effects of the medication used. Nor have I used any oxygen or any other type of counteracting therapy. Liver malfunction is frequently listed as a contra-indicating factor to the use of Meperidine. In most cases of prolonged effects such as drowsiness and nausea from Meperidine, it has later been discovered that the patient had a malfunctioning liver. We rarely see these conditions. I also believe that they are understandable. I would not want to eliminate the advantages from the use of medication from all of the other children, where it is so effectively and advantageously used, because of any side reactions which I have seen.

Answer by Dr. Album. I had to use drugs such as Lorphan just in about a half a dozen cases, and actually of those I questioned at least whether three and possibly more were even needed. There is really no risk with the proper dosages suggested here today. This is really a question of re-evaluating our drugs in light of the dental patient.

Answer by Dr. Kopel. The only time I have seen any difficulty in the use of premedication was on a two year old child. I consider this age level the most difficult on which to use medication. I was glad to hear of Dr. Lampshire's suggestion of dosage for the two year old child. Quite possibly my dosage has been inadequate, and I only medicated the young children into the excitement stage.

Reduction of Radiation Dosage in Dentistry for Children*

GORDON M. JINKS, D.D.S.

DURING the past few years there has been a rising concern over the hazards of radiation in dental and medical practice. This concern has developed mainly because of the amount of extra man-made radiation released from atomic testing. It has frightened many people because its effect is unknown. Concern has been expressed mainly over the dose received by the reproductive organs and the possible mutations produced in future generations. This fear, once having developed in the minds of people, is most difficult to remove even though recent investigations have shown that the actual amount of radiation received from atomic testing is well within the limits of reasonable safety—approximately 1 mr. per year.[1] Natural radiation from cosmic rays, radio-carbon within the body, and some other sources is approximately 100 mr. per year.[2]

On the other hand, radiation from dental and medical sources contributes distinctly to the total dose received, but this radiation is delivered to specific areas of the body and cannot be interpreted as whole-body exposure. Gaining information, hence, resolves itself to a study of the amount of radiation received by the reproductive organs during certain procedures. A most important contributing activity is fluoroscopy which may deliver a genetic dose of as high as 200,000 mr.[3] when repeated examinations are completed over a period of a few years. The exposure to radiation during a single radiographic survey of the chest is equivalent to but one-quarter of a second of fluoroscopic examination.[4] Richards[5] has shown that the gonadal dose from one full-mouth dental survey can be reduced to 9.45 mr. when the total time of exposure is 5.9 seconds. This time for a full-mouth survey of children can be reduced further to 1⅗ seconds as will be shown.

Since the dentist will be reading much about radiation, a few definitions, abbreviations and concepts first should be presented.

N.C.R.P.—The National Committee on Radiation Protection is the official body of the United States which, in cooperation with international bodies, lays down policy of protection from radiation and sets the M.P.D.

M.P.D.—Maximum permissible dose is the amount of ionizing radiation that, in the light of present knowledge, is not expected to cause detectable bodily injury to a person at any time during his lifetime. This dose now is limited to 100 mr. per week or 5,000 mr. per year to any part of the body.[6] This figure is the M.P.D. for personnel using x-ray equipment. For non-occupational exposure, the N.C.R.P. has established a limit of 1,500 mr. per year.[7]

Gonadal Dose.—The gonadal dose is that amount of radiation received by the spermatozoa or ova and it is not the same as the dose in air since overlying

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tissues filter out many of the rays. Richards[7] estimates that the gonadal dose is 50 per cent of the air-dose in the pelvic region.

Roentgen.—The roentgen is the international unit of radiation and it is designated by the sign, r. It also is measured in mr. or thousandths of an r. (1 r is 1,000 mr.)

K.V.P.—Kilovolt peak is the peak of the power delivered to the x-ray tube. Two amounts are utilized in dental equipment, 65-70 K.V.P. and 90 K.V.P. The advantage of the machine with the higher K.V.P. is its ability to deliver more penetrating rays of higher wavelength and reduce the dose by some 21 per cent over that delivered by the machine utilizing 65 K.V.P.

Collimation—Collimation is a restriction of the primary beam by means of a lead diaphragm which has a ¾-inch aperture and, when inserted into the primary beam, restricts the beam to a diameter of three inches at the tip of the cone. Both long and short cones should be equipped with a diaphragm to restrict the beam to three inches and produce the resultant diminution in the dosage.[8]

Injuries to Tissue From Radiation—Injuries to tissue are caused when x-rays displace orbital electrons from the atoms and molecules with which they collide. The biologic effects of radiation are produced by biochemical reactions in tissues as recombination takes place.[4] The effects of radiation have been documented by many investigators[9,10,11,12,13] and include such conditions as fetal death, microcephaly, hydrocephaly, anomalies of the eye, damage to epiphyseal cartilage, and leukemia. This last condition can be induced in animals[4] experimentally and apparently a high rate of leukemia develops among personnel using x-ray equipment.[14,15,16]

Methods of Reducing Radiation

The reduction of radiation to both the patient and the operator can be accomplished by:

1. Interposing a barrier between the x-ray machine and the operator;
2. Using the fastest film available;
3. Using an intensifying developer;
4. Reducing the number of films exposed for an oral survey;
5. Using filtration;
6. Collimating the x-ray machine;
7. Operating the machine at a high K.V.P.;
8. Using a leaded cloth over the patient's pelvic region.

1. Interposing a Barrier Between the X-ray Machine and the Operator

Barriers usually are constructed of lead or concrete. The specifications have been reviewed by Richards[5] and require no elaborating in this report. It is obvious that the reduction of the time that the x-ray machine is in operation also will reduce the radiation to the operator.

2. Fast Film

Letters were sent to three major suppliers of dental x-ray film requesting literature on their fastest film. The companies were Kodak, Dupont and Rinn. All companies now manufacture high speed films in *adult size* which will produce a clear picture at ⅕ of a second for machines utilizing 65-70 K.V.P. and $\frac{1}{10}$ of a second for machines utilizing 90 K.V.P. However, Rinn is the only company which manufactures a very fast child-size film. Kodak's child-size film has a speed averaging ¾ seconds per exposure. Dupont does not make

child-size films. Rinn's child-size film can be exposed at an average of 2/5 of a second, or twice as fast as that of Kodak. All exposures, bite-wings or periapical, can be exposed for the same length of time. The time can be reduced by an additional 50 per cent by using a more active developer so that a full-mouth dental survey now can be obtained with films exposed for only 1/5 of a second each.

3. High-Potency Developer

It is gratifying to learn that most manufacturers of dental x-ray equipment and supplies are responding to the public's fear of radiation by conducting research to better their products. Notable among these manufacturers is Picker X-ray Corporation, which has produced an intensifying developer called "Pix." This corporation claims that exposure can be reduced by 20 per cent when Pix is used. Results in the dental office have shown that the length of the time of exposure can be reduced 50 per cent. All of the Rinn films now can be exposed at 1/5 of a second, using 70 K.V.P., despite the manufacturer's specification of 2/5 of a second for the exposure.

4. Limitation of Films

It has been accepted practice[17] to secure 14 radiographs for a full-mouth survey, starting as early as possible after three years of age. Considering that the younger the child the more susceptible to radiation are his tissues and, also, that the shortness of his torso places the target close to his gonads, it is recommended that full-mouth surveys be reduced to eight radiographs during preschool age. Additional radiographs can be spaced out over the years when deemed necessary. This technic results in approximately a 40 per cent of reduction in total exposure. At 1/5 of a second per exposure, a total of 1 3/5 seconds would result as compared to Richards' figure of 5.9 seconds for a full-mouth survey.

The resultant dosage of radiation to the patient with such a technic can be calculated by determining the output in r's per second of the x-ray machine used. These figures can be obtained from the manufacturer. For example, General Electric's 70 K.V.P. machine delivers 1.39 r in one second at an 8-inch film-target distance with added filtration. In 1 3/5 seconds the dosage would amount to 2.10 r.

Handbook No. 60 of the U. S. National Bureau of Standards states: ". . . for persons under 18 years of age who are exposed non-occupationally to radiation in the course of their normal activities, protective measures shall be taken to make sure that they receive no more 1.5 r per year." Obviously, a patient being exposed by the machine that would have to be used is being exposed to more than the recommended radiation. Fortunately, however, there are several ways that the dosage can be reduced further without sacrificing the diagnostic value of the film.

5. Addition of Aluminum Filter

An aluminum disk, 0.5 mm. in thickness and about the size of a silver dollar, placed in the x-ray machine at the point where the rays leave the head will reduce the exposure. These disks can be ordered through one's dental supplier. Most x-ray machines possess an inherent filtration, usually in the glass surrounding the tube. The new General Electric machines have the equivalent of 1.5 mm. of aluminum, hence the addition of 0.5 mm. of aluminum will

produce a reduction[8] of 21 per cent in dosage. Etter[18] found that there was no advantage from the addition of more than 2 mm. of filtration.

6. Collimation

Collimation is secured by the insertion into the machine of a lead diaphragm which has a center ¾ inch in diameter to restrict the beam to three inches at the tip of the cone. Richards[8] has shown that this restriction will reduce the dosage.

7. The Use of Higher Voltages

The use of higher voltages produces rays which are more penetrating and, therefore, the time of exposure can be reduced. Even though radiation is delivered at a greater rate, the resultant dosage has been found to be 21.5 per cent less.[8]

8. Lead Apron

Since it has been shown[8] that children, because of their shorter torsos, receive 2¾ times the gonadal air-dose, it may be wise to drape all children across the pelvis with a lead apron during radiography. To test the effectiveness of this lead apron, the British Columbia's Research Council at the University of British Columbia, completed a survey of the methods used. It was found[19] that there was a 96 per cent of reduction in gonadal air-dose by using a lead apron as compared with the dose delivered without the apron. The dose was found to be .0008 mr. for one exposure when using a 70 K.V.P. machine at ⅕ second. Hence, an eight-film full-mouth survey will produce a total dose of .0064 mr. The figure of Richards[5] for the gonadal dose during a full-mouth survey was .45 mr. Using a lead apron, reducing the number of films and using an intensifying developer, the total exposure to the gonads can be reduced by approximately 98.5 per cent during a full-mouth survey.

Summary

A discussion has been presented of the sources and the effects of x-radiation when children are radiographed in the dental office. It has been shown by:

1. Interposing a barrier between the x-ray machine and the operator;
2. Using the fastest film available;
3. Using an intensifying developer;
4. Reducing the number of films for a full-month survey;
5. Using filtration;
6. Collimating the x-ray beam;
7. Operating the machine at as high a K.V.P. as possible, and
8. Using a leaded cloth over the patient's pelvic region that a reduction of some 98.23 per cent in radiation to the reproductive organs of the child can be effected. It also has been shown that the resultant dosage to the gonads is so far below the permitted dose that it is negligible and should cause no concern.

3195 Granville St.
Vancouver, British Columbia
Canada

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Book Review

DENTAL BIOGRAPHICAL SKETCHES. By A. P. S. Sweet, Pittsford, N. Y. Naportan Company, 33 p.

Some time ago we wrote a letter to Dr. Sweet to express regard for the graphical art represented in the magazine, *Dental Radiography and Photography*. While it is a commercially purposed publication, nevertheless it represents superb craftsmanship in the printing arts. The print, the illustrations, the color, and the enameled papers upon which it is printed are consistently excellent. He replied that such letters were sincerely appreciated by all who worked upon the magazine and they hoped to continue to merit the praise.

Even if those who receive and read the magazine are only subconsciously aware of its graphic skills, the dignity of presentation by Dr. Sweet in editing the magazine is much admired by all. And the charming biographical vignettes within the front cover that he creates through research are invaluable contributions to the records of dental history.

The present dignity and the high public regard of dentistry has been no accident. Talented, skilled and ethical men have contributed their share in raising our profession from its undefined beginnings to its present level of repute.

It is a good thing to be able to be so proud of one's profession and since history is largely a matter of biography, the influence of dentistry depends to a subtle degree upon such works.

If you have wished for a separate publication of some of the most interesting of these biographies, the opportunity presents itself with this booklet of 26 histories. One can be pleased to be a member of a profession which has known such fine men. I think you will find this book quite unique amongst the publications devoted to dentistry.

MARVIN DAVIS

Unit News

FROM behind this typewriter, '59 looks good. This issue has 23 Units reporting, and that bodes well for our Society. It means our Units are active and, just as important, are willing and anxious to share their experiences and projects with all our members. Read on a bit and you'll see where Claude Warden turns in a prediction of good things for his Unit. I would like to go a little farther and predict a banner year for ASDC.

Thanks again to all my faithful correspondents. Your cooperation has made this job a cinch. And thanks also for your many kind words.

But now, let's see what's happening.

Northern California

It's early in the season, and this Unit already has more than 270 paid-up members. This good news includes 22 new members who were signed up as the result of a full page ad about the Unit which appeared in the *Journal of the California Dental Association*. Sounds like a good idea for other Units to try.

Fran Bushnell has set up a fine program schedule, and Cy Young is in charge of the membership drive. Claude Warden, Unit reporter, has called upon his crystal ball and predicts a 25 per cent increase in membership for the year. To prove the courage of his convictions, Claude writes, "I'll bet you a beer (payable in New York) . . ." O.K., Claude, you're on—and it'll be a pleasure for you to be my guest!

His parting shot smacks of politics and cannot go unheeded. "Our prexy this year," he tells me, "is Ron Light, an orthodontist. We didn't check with the home office on this, but naturally assume it's no worse than having a Democrat at the helm." Now, Claude, how could you make a statement like that to *this* reporter? If Ron proves to be only *half* as good as a Democrat *will* be, your year will be even better than you contemplate! Cheers!

Southern California

This Unit literally bombards my office with communiqués. Old reliable George Higue comes through with personal correspondence; efficient secretary Miss Lorraine Duncan sends in all the official notices; and a copy of the official publication, *The Children's Chair*, always turns up.

President-elect William Allen is program chairman and has been doing a corking good job. In February, Charles A. Sweet, Sr., presented an afternoon and evening program on "Dentistry for Children in 1959." Irwin Beechen discussed "Tooth Guidance" with the Unit in March, and Maury Massler was scheduled for April.

May is the month for the Eighth Annual Post Graduate Conference. The site is the Ojai Valley Inn, and Dr. Reider F. Sognnaes of the Harvard Dental School is the headliner. Mode Perry is conference chairman. Clinton Emmerson will wind things up in June with a lecture on "Pedodontics." Smooth sailing, men!

Colorado

Lou Dubin scores again this issue in his usual good fashion. He reports this will be his last effort as correspondent, so here it is—as he wrote it:

The beginning of another year and the Colorado Unit is on its way. On January 12 we had 65 men at our annual luncheon in the Denver Club again. Dr. Weldon E. Bell of Dallas, Texas, was guest speaker and was very well received in his discussion on "The Common Mouth Ulcers in Children."

The election of new officers was postponed until Seminar Time in May. This will allow the new officers to plan their program through the summer months for the full year and carry them through without a change of officers in January.

On January 25 our second study club meeting covered proteins and fats in our nutrition series. Carbohydrates, natural and refined, will be covered in March. A summary of nutrition with an outline will be worked up in April and on May 23 and 24, Dr. Michael Walsh of Beverly Hills, California, will be our Seminar Clinician. The welcome mat is out for anyone who wishes to attend. Weather in Colorado is wonderful at that time of year for a vacation.

Children's Dental Health Week was well organized under Willard Guard's leadership. Monday, Joe Beaghler did an actual pre-school examination and gave a talk to the mothers on television. Tuesday, 60 dentists took care of previously examined orphans, in their offices. Transportation was furnished by the Dental Auxiliary. Also Tuesday, Will Guard and Vince Kruzick appeared on two Children's TV programs. On Wednesday, Bill St. John was interviewed by Gene Amole on radio. Thursday, our Denver Dental Association President, Ben Kletsky, was interviewed on "Denver at Night" on radio, and Friday Bill Cody finished the week with another TV program. A really full Children's Dental Week.

In February, Ben Kletsky was guest lecturer at the monthly Children's Hospital Grand Rounds luncheon. He discussed the dental problems of children as seen by the pediatrician and suggested ways to care for them.

Bill Humphrey was this year's local clinician for the Denver Dental Association's monthly meetings. He gave us the history behind the Rocky Mountain Stainless Steel Crowns and his technique for their use.

This should be your correspondent's last report, but it has been fun keeping up with a very busy and active Unit.

Florida

According to John Tabak, Dr. Ralph McDonald, chairman of the department of pedodontics at Indiana University, presented a most successful "post-doctoral" course for two days in February. They came—35 in all—from all corners of the Gator state plus eleven dentists who were serving a preceptorship in general public health dentistry under Dr. Floyd DeCamp, director of the Bureau of Dentistry of the Florida State Board of Health. Dr. DeCamp was also present.

Past president Ellen Crockett was in charge of a project to place copies of the ADA book, *Teeth, Health, and Appearance* in 115 Florida high school libraries. As usual, her job was well done!

In the department of reproduction, reporter Tabak checks in with a first son for his family, Bob Cole announces a son in time for last year's tax deductions, and Chris Sucres reports the ar-

rival of a daughter. Bob Cole, by the way, is now practicing pedodontics in Orlando.

As of January 1, 1959, the Unit lists 143 members—lots of activity.

Georgia

Children's Dental Health Week was the high spot of activity during the last few months. The Unit participated along with the several other interested organizations in the State. Dr. James Carroll, director of the dental division, Fulton County Health Department, was largely instrumental in seeing to it that things moved according to schedule.

One of the features this year was an essay contest. Dr. Carroll has just reported that it was won by an eighth grade Negro girl who titled her paper, "The Great Puzzle." The "Puzzle" about which she wrote, of course, is the fact that Atlanta still does not have fluoridation. But we're trying, and maybe—just maybe—some day. . . .

(Editor's Note: *As these galley proofs are being corrected, word comes of the arrival of Anthony Clark Levitas at eight pounds, nine ounces. Young Tony is son number two and child number three for the Levitas clan. A.E.S)*

Idaho

Primary emphasis at a mid-winter meeting in February was on practical clinical demonstrations of improved techniques for children's dentistry. Wes Young reports from Boise that it was most successful.

First part of the session was held in the offices of Bill Wilson and Dale Albin. Demonstrations were given in the use of a general anesthetic to do dentistry for cerebral palsy children and in the use of the rubber dam for pulpotomies and routine operative dentistry. The latter part of the session was held in the office of Sam Winn who demonstrated the use of the air turbine in children's dentistry. Frank Hyke, along with those already mentioned, participated in the presentations, and almost half of the Unit's membership attended.

Plans are already underway for the annual meeting which will be held in conjunction with the Idaho State Dental Association's meeting in McCall, June 22-24.

Illinois

Reporter Jane Selbe follows up her first fine effort with more news this time. Thank you, ma'am—and here's what she wrote:

The Illinois Unit of the ASDC held its most successful annual luncheon meeting February 10, 1959, during the Chicago Midwinter Convention. We had about 100 in attendance to hear Dr. J. R. Blayney give us some new findings of the Evanston Fluoridation Program, all overwhelmingly convincing of the efficacy of fluoridating public water supplies. We were honored also to have many nationally prominent pedodontists, among whom were our national president and president-elect, Harold Addelston and William Brown.

Thanks to Stan Korf for a fine program. He and Bill Sowle haven't let any moss gather on this last meeting. They already have the program outlined for a seminar in Rockton, Illinois, on Tuesday and Wednesday, April 7 and 8, at The Wagon Wheel Inn:

1. Dr. Quentin Williams, Pedodontist, Corpus Christi
   "Use of Cast Silver Inlays"
2. Dr. Max Sadove, Professor of Anesthesiology, Illinois Research Hospital
   "Anesthesia and Medication in Dentistry for Children"

3. Dr. Edward Liss, Professor of Pediatrics, University of Illinois Medical School
"The Handicapped Child: Newer Perspectives"
4. Dr. Milton Braun, Professor of Orthodontia, St. Louis University School of Dentistry
"Cephalometrics as an Aid in Understanding Growth and Development"
"Bite Plates and Lower Lingual Appliancees"

We hope by the time this appears you will all have made your reservations for a factual and fun time at The Wagon Wheel.

Indiana

Another member of the distaff side—Elizabeth Graves—reports that her Unit scheduled its first three day conference for April 19-21 at the French Lick-Sheraton Hotel, French Lick, Indiana.

Dr. Irwin Beechen, Oakland, California, heads the scientific program. He will be supported by the presentation of five research papers by Doctors Richard Jennings, Arthur Klein, Ralph McDonald, John Mink, and Paul Starkey. "Sputniks, Space and You" is the title Mr. Robert Kryter chose for an after dinner speech. He has given more than 800 lectures on scientific subjects and promises to be another highspot on the program.

Have no fear about being "strung up by your thumbs," Dr. Graves. As you see, your report arrived in time.

Iowa

D. E. Griffith gives us a short report as follows:

Members of the Iowa Unit are looking forward to the largest annual meeting to date, as well as the most interesting and informative. Dr. William E. Brown, of the University of Michigan School of Dentistry, and the President-elect of ASDC will be the principal speaker.

Each year the Iowa Unit increases in membership and interest, an indication of the increased interest in children's dentistry.

The slate of officers for the year is as follows:

President .... Elmer C. Prall, Mt. Vernon
President-elect ... Merle Bean, Des Moines
Vice president .... A. Miles Olson, Laurens
Secretary-Treasurer Walter Yeager, Waterloo
Executive Committee:
M. A. Dalchow, Maquoketa
Duane Schmidt, Fort Dodge
L. H. Wagner, Holstein
William G. Goodale, Iowa City

Massachusetts

Good to hear from you again, Bob Kirschbaum! Your claim that your Unit is the "most progressive in the ASDC" might be challenged by some of the boys in the hinterlands—but stick to your guns, laddie!

Membership chairman Stan Kauffman led the drive which netted 60 new members last year and saw the list grow to 146. Lou Calisti is the energetic program chairman. In January, my good friend Sidney Finn, University of Alabama School of Dentistry, spoke to the Unit on "Child Management." As you might expect, Sid's lecture was well received.

Bob lists some new members as Richard Adams, Chatham; Nicolas Albanese, Concord; Asher Alpern, Chelsea; A. Peter Arsenaux, Belmont; Harry K. Bailey, Marblehead; Edward H. Barry, Framingham; and Sidney E. Barron, Brockton. Welcome, men.

President Charlie Boyers has the boys on the ball, and the Unit appears to be off to a good year.

Minnesota

That rock of dependability, Rocky Schwarzrock, scores again—and I say thanks, again. Here's his report:

Attendance at the regular meetings each month continue to add fuel to the fire for children's dentistry. In January, Dr. Francis Fleege of Milwaukee addressed a group of 66 members and guests.

On February 17, our own Dr. William Nienaber of the University of Minnesota College of Dentistry talked to more than 57 members and guests on the subject of "Deciduous Amalgam Problems," performing as handsomely as he looks.

Senior dental students are taking advantage of their opportunity to enjoy membership with the Minnesota Unit assisting with the dues. Fifteen to 20 attend each home meeting. It's a distinct pleasure to have them.

A bonus meeting! On March 25, Dr. Bill Brown of Ann Arbor presented an all day clinic on the subject of "Interceptive Orthodontics" at the U. of M. College of Dentistry. Bill was brought here at the expense of the ASDC, Minnesota Unit, free of charge to members.

The March meeting (regular meeting, that is) is the meeting annually scheduled at one of the smaller cities in Minnesota. This time it was at the Burton Hotel in Mankato. Dr. John Anderson, Chief of Pediatrics, University of Minnesota Hospital, addressed the group.

Keep in mind the May ANNUAL DINNER MEETING, wives invited! May 19 is the date!

Missouri

Two communications from the Show Me state this time. Ed Brungard's letter to me is just between "us girls," but his Unit News report is good reading for all, so peruse, please:

As predicted, Dr. Joseph Burket, of Kingman, Kansas, spoke at the regular February meeting of the St. Louis Dental Society. His informal and humorous style made the evening as enjoyable as it was informative. At the same meeting, the Committee for Nuclear Information announced to the Society their "Baby Tooth Survey." Seems as though radioactive Strontium 90, resulting from tests of *The Bomb,* finds its way into the bones and teeth of children. This group hopes to measure the extent of the radioactivity by studying extracted primary teeth. More of that in a later letter.

In the latter part of January, two of our St. Louis members played prominent roles in a workshop in Jefferson City. Each year the Missouri State Dental Association sponsors a workshop for the discussion of topical dental items. This year, Joseph V. Kirby was chairman of the section which discussed the writing and distribution of an elementary school teaching guide on dental health. The following day, James M. Jolly was moderator of a meeting of both sections at which we reviewed and approved the work of each.

William B. Stocker, down in Springfield, has completed arrangements for the luncheon-business-election meeting at the coming state meeting there this May. Lunch will be served sometime around noon (makes sense) on Sunday at the Kentwood Arms Hotel. If you plan to attend the meeting, please let Bill know so he can reserve you a place.

Jim Brophy, our St. Louis executive secretary, managed to get 35 large outdoor billboards donated for one week to advertise Children's Dental Health Week. Don't know how he did it, but the publicity around here was wonderful.

That senior seminar, by the way, will be held at St. Louis University's School of Dentistry. That wasn't mentioned in last quarter's newsletter, and might save

somebody a lot of wandering around on the night of April 23.

Montana

Fred Schwin has taken over from friend V. V. Crissey. Welcome aboard.

Glacier National Park will be the scene of the Unit's annual meeting, June 26 28. Dr. Frank J. McAtee, Twin Falls, Idaho, will discuss tooth guidance problems and interceptive orthodontics. All ASDC members in the area are invited to attend.

The Unit is happy to welcome Dr. Trithart, formerly from Jackson, Tennessee, as a member. He is now the dental director of the Montana State Board of Health.

New Jersey

Put "Shorty" Gale in front of a typewriter and there's no stopping him—temporarily or otherwise! But who wants to? See for yourself:

The Mid-Winter meeting of the New Jersey Unit, held on February 4, was a huge success. In the afternoon, 10 table clinics were presented by members of our Unit.

TABLE CLINICS

No. 1—A. Milton Bell, D.D.S., West Englewood, N. J., Research Fellow, Guggenheim Foundation Institiute for Dental Research
"The Use of Quick Curing Acrylics in Pedodontics"

No. 2—Bertram Kaswiner, D.D.S., Newark, N. J. Orthodontist, Newark Beth Israel Hospital
"Serial Extractions—Their Place in Pedodontics"

No. 3—I. Michael Harris, D.D.S., Hackensack, N. J., Diplomate, American Board of Periodontology
"Periodontal Problems in Pedodontics"

No. 4—Clifford L. Whitman, D.D.S., Hackensack, N. J., Associate Professor of Orthodontics, Columbia University: Diplomatic, American Board of Orthodontics
"The End of Model Making Headaches"

No. 5—Harry R. Barber, D.D.S., Bridgeton, N. J., Acting Chief, Oral Surgery, Cooper Hospital, Camden
"A Routine for General Anesthesia in Small Children"

No. 6—Albert W. Schilke, D.D.S., Englewood, N. J.
"Mouth Protectors"

No. 7—Daniel W. Silfen, D.D.S., Jersey City, N. J., Pedodontist, Polyclinic Hospital, New York
"Pulpal Anatomy of Deciduous Teeth and Its Influence on Operative Procedures"

No. 8—Jerome L. Fechtner, D.D.S., Fanwood, N. J.
"Ultra Speed Technics in Dentistry for Children"

No. 9—Abraham Kobren, B.S., D.D.S., White Plains, N. Y., Associate Professor of Pedodontics, Seton Hall College of Medicine and Dentistry

and

Ovid Slavin, B.A., D.D.S., Flushing, N. Y., Assistant Professor of Pedodontics

"Removable Space Maintainers for Children"
No. 10—WALTER SCHWARTZ, D.D.S., Roselle Park N. J., Chief, Pedodontic Department, Newark Beth Israel Hospital
"Fixed Space Maintainers for Children"

This was followed by a cocktail hour and a full course dinner. Following the dinner, Dr. Robert E. Moyers of the University of Michigan presented a most interesting lecture illustrated by lantern slides on "Interceptive Orthodontics." The entire program was arranged by H. Curtis Hester, our chairman. (See cuts.)

Our Unit supplied the Outdoor Advertising Association of New Jersey with 179 billboard posters obtained from the American Dental Association. These billboards, 10 by 20 feet, carried the message of Children's Dental Health Week, "Unlock Your Smile; It's the Brushing That Counts." These posters were displayed for periods of one month at locations all over New Jersey, and many of them were illuminated. The cost of the posters was shared by our Unit and the New Jersey State Dental Society. The Advertising Association contributed the labor and space for displaying the

posters. There is no doubt in our minds that a great deal of good will result from this form of publicity.

At the present moment, we are busy arranging for our Annual Meeting to be held in Atlantic City in conjunction with the New Jersey State Dental Society, and many of our members are cooperating with the New York Unit making preparations for the annual meeting of the American Society of Dentistry for Children to be held in New York.

Fred Lauer, our membership chairmen, is doing a fabulous job in obtaining new members for our Unit. He expects to see our membership increase to 500.

New Mexico

New officers are reported as James Matthews, president, and Lee C. Hyde, Jr., vice-president. Both men are from Albuquerque. And, of course, I. L. Voda, from Las Vegas, was returned to the office of secretary-treasurer. This makes his third consecutive term in that office. If his record-keeping is as good as his reporting, I know why they keep him. Congratulations.

The election meeting was held in Albuquerque, and 40 members and guests were present. Speakers were Dr. Tanner and Dr. Rutledge who were the clinicians for the Post Graduate Seminar.

New York

Charlie Beck submits his last report this quarter—and it's our loss. His replacement has big shoes to fill because Charlie has made a fine contribution to his Unit and to our Journal. Let's read his finale:

The New York Unit is preparing for the annual meeting with a meeting planned this year for our capitol city of Albany. The date will be April 18 and 19 and the place the Sheraton Ten-Eyck Hotel. Along with an excellent social program which will delight the ladies as well as their husbands, an outstanding scientific schedule will be available.

Following the Saturday evening banquet, Dr. Morris Eson will discuss "Child Behavior Patterns." Dr. Eson is eminently qualified on this subject and is the professor and head of the department of psychology at the New York State Teachers College in Albany.

Sunday morning there will be a series of registered clinics followed by a full range of table clinics arranged by Roland Hawes of the Eastman Dental Dispensary.

The principal essayist will be one of New York's most active and capable oral surgeons. Dr. Stanley J. Behrman, FACD, Associate Professor of Clinical Surgery at The Cornell Medical School and Assistant Attending Oral Surgeon at New York Hospital, among many credits, will speak on "Clinical Oral Pathology in Children."

As I conclude my term as secretary of the New York Unit, let me say it has been a pleasure to do this and from here—I'll be a reader.

North Carolina

Correspondent Roy Lindahl is another of those making an outstanding contribution—and I for one appreciate his efforts. The more he does, the easier it is to compile this column. And he does plenty. See for yourself:

During the December meeting of the Executive Committee of the North Carolina Unit, plans were formulated for a two-day seminar to be held in Charlotte, N. C., November 7-8, 1959. At that time we are planning to have as the featured clinician an outstanding

man on Dental Practice Management as it relates to the practice of dentistry for children. This seminar will replace the annual meeting which was held with the North Carolina Dental Society and will complement the Annual Seminar which is held each April in Chapel Hill.

Our dynamic President, Don Henson, has initiated a plan of bi-monthly newsletters to the membership to keep them up to date with the latest in dentistry for children in North Carolina. The first letter has been sent to all the members and included a complete roster of the members of ASDC in the state. Our 1958 membership was 140 (approximately 13 per cent of the dentists licensed to practice in the state) and through the efforts of O. J. Freund of Winston-Salem, our membership chairman, we hope to increase our number.

On April 2, 1959, we will again hold our Annual Spring Seminar in Chapel Hill, and it promises to be a very outstanding program. We will have a nationally known clinician along with some active participation of our own members on the program.

The Unit, working in cooperation with the North Carolina Dental Society, has made definite progress in eliminating confusion and establishing fees for dental service for children as provided in the School Health Coordinating Service. This progress would have been much longer in coming if it had not been for the support of the Unit for the program outlined by our immediate past president, Freeman C. Slaughter of Kannapolis. To us in North Carolina it is a manifestation of what can be accomplished by a group of dentists joining together in a common interest—better dentistry for children.

In closing, we are pleased to report that our Unit is now incorporated according to the laws of the State of North Carolina.

Ohio

A nice note from Allen Hall inquires about all the folks down "Georgia way." We're great, thank you—and trust the same is so with you. He also reports their election of officers. New title holders are: Paul Starkey, president, Dayton; Davis S. Maddox, vice-president, Zanesville; and Salvatore J. Scaravelli, secretary-treasurer, Parma.

A new book appeared on booksellers shelves on March 6. *Your Dentist and You* was written by Charles M. White, D.D.S., of Warren, Ohio, a member of the Ohio Unit for the past several years. A substantial part of the book is devoted to our favorite topic "Dentistry for Children." We wish fame and financial success to Charley White in this new production!

Oregon

Robert J. Gardner, president, has entered the Army. Reporter Bob Anderson has this comment: "For the life of us, we cannot understand why he voluntarily joined the Army to go to *Texas!*" He became a defender of our liberties in January, and all concerned are hoping he will be back soon.

Meanwhile, Evelyn Strange stepped up from the office of veep and has taken over the presidency.

In December, a workshop was held at which time members of the Unit discussed first appointment procedures. The evening session featured Dr. James O'Dell, a pediatrician, who discussed medical emergencies pertaining to pediatric dental patients.

Clinical Hypnosis was the topic of discussion in January for the first part of the program. This was led by Dr.

Dan Steffanoff, Portland maxillo-facial surgeon. The second part of the program dealt with periodontal problems in children. Dr. Frank G. Everett, periodontist and author of a new book on periodontia, was the speaker on this oft-neglected subject.

Dr. P. Earle Williams, Dallas oral surgeon, will speak to the Unit at its annual luncheon during the Oregon State Dental Association meeting.

In addition to preparing this fine report, Bob Anderson has been busy scheduling all those top programs you just read about.

Pennsylvania

Plans have crystallized for the State Convention. It will be held for the first time at Bedford Springs Hotel, May 15-17. President, correspondent, and friend Manny Album promises a weekend of the finest. Dr. Roy Wolff, St. Louis, will be the clinician and will discuss office and practice management. There will also be a series of table clinics. If you're interested in being present or putting on a clinic, contact Manny, Bob Spangler, Bob Moore, or Mort Winkler.

In the same letter, Manny writes that the

Philadelphia Section

held its second Postgraduate Seminar in January. Dr. Kenneth Easlick, Professor of Pedodontics at Michigan, was the all-day speaker. An overflow crowd was in attendance.

Rhode Island

"General Anesthesia for Children" was the topic at the December meeting. Dr. Meyer Saklad, Chief of Anesthesiology at Rhode Island Hospital, was the lecturer.

Texas

M. M. Sharpe, Lubbock, has moved up to the presidency of the Unit. Other new officers elected with him are Kenneth L. Cathey, San Antonio, vice-president, and Harold M. Scott, Jr., secretary-treasurer, from Sherman. The boys out there are also proud of the fact that one of their own, James H. Simmons, Fort Worth, was elected vice-president of the ASDC last November.

In a follow-up letter, Harold Scott reports that plans for the annual meeting on May 3 have been completed. It will be held at the Menger Hotel in San Antonio. Emphasis on the program will be placed on children's dentistry in general practice. Essayists will be James Simmons, Charles Cash (also of Fort Worth), Charles Yates, Dallas, and Frank Steiger, Houston.

Washington

Rolland Woofter enters the picture as a new correspondent and certainly makes an auspicious beginning. Read on —you'll be glad you did:

The Washington Unit is making strides like that gentleman so famous in this part of the U. S.—Paul Bunyan. So many interesting and exciting Washington Unit events, I hardly know where to begin.

First, I would like to add a little to Bob Morrow's advance report on the December meeting in Spokane. We were privileged to have Dr. Francis Fleege of Milwaukee, Wisconsin, as our clinician. Though now in private practice, he drew on his many years of experience—five of which he was Pedodontic Department Head of Marquette University and Chief of the Dental Department of Milwaukee Children's Hospital. Fran, as he prefers to be known, can be seen

in the enclosed picture (at the blackboard) explaining to the group the mechanics of determining available space for permanent teeth of the mandibular arch (see photo).

This meeting drew members and guests from British Columbia, Montana, Idaho, Washington and Oregon. All present said they had obtained many "pearls" to take home. In fact, Jim Morphis and Edwin Jones also took home the door prizes of a portable television set and a "Paul Bunyan Fifth" (1 gallon) of bourbon.

The new officers were elected at this meeting (enclosed picture is of the officers in their first executive meeting with names reading left to right as follows): Jim Condon of Spokane will lend his weight (250 pounds at least) to the president's chair, Neil Beasley (fellow pilot, President-Elect, hails from Seattle, keeper of the coffers, John Parrish, lives in Puyallup, and your humble scribe, Rolland Woofter, practices in Kennewick (see photo).

Somewhere in the discussion at the December meeting "washed field technique" was mentioned, and to show that the boys really "live" their work, I am enclosing the picture and note Jim Condon sent me (see photo and copy).

The membership is to have the good fortune of hearing Dr. Walter T. McFall, of Asheville, North Carolina, at our section of the Washington State Dental Association's Annual Meeting.

The above smiling countenances were caught at about the third refill during the shampagney hour portion of the Saturday evening festivities which also included bull-bones, potatoes and live music atop the Ridpath roof. The boys were crowded and elbowed into the latrine by the overflowing attendance as they were busily discussing (appropriately enough) the "washed field technique." Left to right, top: "Dick Nixon" Hyke from Lewiston, Idaho, Jim "Curly" Fleege from Burien and Seattle; middle: Fran Fleege, our respected clinician; bottom; Jim Condon from Spokane, Pat (note position of little finger) Fleege from Seattle, and Bubbley Bobby Blancher.

June will bring another meeting in Southeastern Washington when Dr. Irwin Beechen, College of Physicians and Surgeons, will be the clinician.

The highlight of the year will be in Harrison Hot Springs when this unit joins with Oregon, Idaho and Montana to sponsor the Pacific Northwest Conference. The Washington Unit is host this year. Considering the pace set at McCall and at Gearheart, I should have plenty to report after this one.

I shall fill in the details of these last three meetings in following letters.

By the way, did you get a translation for "Nit Nit Nir" (first quarter 1958)? Rin Tin Tin spelled backwards!!!

ADDENDA

Although Michigan had no official report this quarter, Tiny Konikow, secretary-treasurer, sent out some interesting information and literature pertaining to membership drives. It consists of a series of letters sent to members, prospective members, hygienists, and dental students. Apparently this Unit found this approach to be successful so here's your chance to cash in. Write *Dr. Zalman Konikow, 500 S. Washington, Royal Oak, Michigan.* He will be glad to send you complete details.

* * *

Dr. Mabel F. Wood, director of dental activities, New Orleans Public Schools, sends along another of her splendid reports. This lady is doing a splendid job in the field of education for children, their parents, and all lay people in her area.

Anyone interested in these phases of dentistry would do well to contact Dr. Wood for a copy of her latest report. She may be reached at 703 Carondelet Street, New Orleans 12, Louisiana.

* * *

And that, my confreres, is that. The many photos sent are more than welcome. We're loaded this quarter—but the more the merrier. Let's really pile on news next time. Those of you who are conspicuous by your absence, let me have something—even a line or two. And those who are here, come again!

TED LEVITAS

News Item

The retirement of Dr. Ruth E. Martin, professor and head of the department of dental pediatrics at the School of Dentistry of Washington University, was announced recently.

One of the nation's leading authorities on dentistry for children, Dr. Martin has been named professor emeritus of dental pediatrics at the University. Her retirement became effective January 1, 1959.

Dr. John E. Gilster, associate professor of dentistry, is now acting head of the department of dental pediatrics at the school. He is a diplomate of the American Board of Pedodontics, fellow in the American College of Dentists and current editor of the St. Louis Dental Society Bulletin. Dr. Gilster was graduated from Washington University's dental school in 1944.

Ruth Martin was one of the first women to be admitted into the American College of Dentists and was a charter member of the American Board of Pedodontics. In 1947 she was one of the St. Louis "Women of Achievement." She was graduated from Washington University School of Dentistry in 1923, had a private practice for about two years and then joined the dental school staff in 1927.

For many years she lectured on the subject of dental pediatrics before national, state and district dental associations and has had her articles published in dental journals throughout the country.

She served as national treasurer and member of the board of directors of the American Academy of Pedodontics, member of the College Curriculum Committee of the American Society of Dentistry for Children and president of its Missouri Unit.

Ruth currently lives at 126 West Calle Crespis Avenue, Santa Barbara, California, where she would welcome correspondence from her many friends in ASDC.

PRELIMINARY PROGRAM AND PRE-REGISTRATION FORM, 1959 ANNUAL MEETING, AMERICAN SOCIETY OF DENTISTRY FOR CHILDREN

COMMODORE HOTEL—NEW YORK CITY
FRIDAY, SATURDAY AND SUNDAY—SEPTEMBER 11, 12, 13, 1959

REGISTER EARLY

SOCIAL PROGRAM

FRIDAY, September 11, 1959—

4:00 P.M. Registration and Knickerbocker Welcome Party
6:00 P.M. Executive Council Dinner (for members of the Executive Council)
Evening free for theatre, N. Y. C. tours, etc.

SATURDAY, September 12, 1959—

10:30 A.M. Coffee Break
11:00 A.M. For the Ladies:
Brunch and Fashion Show at the Waldorf-Astoria Hotel, Jade and Basildon Rooms
1:00 P.M. Scientific Luncheon, Hotel Commodore, Century Room
6:30 P.M. Cocktail Party and President's Banquet, Grand Ballroom, Hotel Commodore

SUNDAY, September 13, 1959—

10:30 A.M. Coffee Break
2:00 P.M. For the Ladies:
Guided Tour of the United Nations Building
4:30 P.M. "ALOHA" Farewell Party

THE SCIENTIFIC PROGRAMS

SATURDAY, September 12, 1959—

9:00 A.M.-10:30 A.M. Registered Clinics
11:00 A.M.-12:30 P.M. Problem Clinics
1:00 P.M.- 3:30 P.M. Scientific Luncheon

SUNDAY, September 13, 1959—

9:30 A.M.-10:30 A.M. Registered Clinics (Repeated)
11:00 A.M.-12:30 P.M. Demonstration and Table Clinics (No special registration required)
2:00 P.M.- 4:00 P.M. Panel Discussion

THE SCIENTIFIC LUNCHEON

The plan for the Scientific Luncheon (which is another innovation at A.S.D.C. Meetings) is as follows: At each table (seating ten) a scientific subject, announced beforehand, will be discussed during and after lunch. At each table there will be one of the clinicians of our Registered or Problem Clinics to lead the discussion and a member of the Scientific Program Committee to guide it.

Members who attend the Luncheon will choose the table they wish and will remain there throughout the Luncheon and discussion.

Scientific exhibits and visual education—Friday afternoon, Saturday, and Sunday. Projected clinics and lectures with discussion are also being arranged.

REGISTERED CLINICS

1. FIXED AND REMOVABLE PROSTHESES FOR CHILDREN
   DR. ALBERT L. ANDERSON, San Diego, California
   Past President, American Society of Dentistry for Children, and
   DR. JACK LONGLEY
   Pedodontist
2. CLINICAL ORAL PATHOLOGY
   DR. CHARLES L. BOYER
   Instructor of Pediatric Dentistry, Harvard University, School of Dentistry; Member of Staff of Children's Medical Center, Boston.
3. ORTHODONTICS AND DENTISTRY FOR CHILDREN
   DR. WILLIAM BROWN
   Associate Professor of Pedodontics, University of Michigan, School of Dentistry.
4. PRESERVATION OF INFECTED PRIMARY MOLARS
   DR. M. MICHAEL COHEN
   Stomatologist, Boston Floating Hospital; Faculty, Tufts University School of Medicine; Author of Pediatric Dentistry.
5. INJURIES TO THE TEETH OF CHILDREN
   DR. ROY ELLIS
   Dean of Faculty, Professor of Operative Dentistry, School of Dentistry, University of Toronto; author of Injuries to the Teeth of Children.
6. TRAINING THE CHILD PATIENT
   DR. SIDNEY B. FINN
   Professor of Dentistry, University of Alabama; Author of Clinical Pedodontics.
7. PULPAL MANAGEMENT IN THE PRIMARY AND YOUNG PERMANENT DENTITION
   DR. JOSEPH T. HARTSOOK
   Associate Professor of Dentistry, University of Michigan, School of Dentistry, Ann Arbor, Michigan.
8. HABITS
   DR. SAMUEL HEMLEY
   Professor of Orthodontics, New York University, College of Dentistry; Author of Orthodontic Theory and Practice.
9. AMALGAM RESTORATIONS
   DR. RALPH IRELAND, Lincoln, Nebraska
   Dean and Professor of Pedodontics, University of Nebraska, College of Dentistry; Secretary—American Board of Pedodontics.
10. DIAGNOSIS AND TREATMENT PLANNING IN PEDODONTICS
    DR. PAUL LOSCH
    Associate Professor of Pediatric Dentistry, Harvard University School of Dentistry; Chief of Dental Department of Children's Medical Center, Boston.
11. PRACTICE MANAGEMENT IN PEDODONTICS
    DR. MELVIN NOONAN
    Pedodontist, Birmingham, Mich.
12. CONTROL OF PAIN IN PEDODONTIC PRACTICE
    DR. NORMAN OLSEN
    Associate Professor and Chairman of Department of Pedodontics, Northwestern University, School of Dentistry.
13. HEALTH EDUCATION
    MR. PERRY SANDELL, Chicago, Illinois
    Director of Bureau of Dental Health Education, American Dental Association.

14. HOSPITALIZATION FOR THE ROUTINE CARE OF EXCEPTIONAL CHILDREN
    Dr. George Teuscher
    Dean and Professor of Pedodontics, Northwestern University, School of Dentistry.
15. CARIES CONTROL
    Dr. Joseph F. Volker
    Dean of School of Dentistry, University of Alabama.
16. PRACTICE MANAGEMENT IN PEDODONTICS
    Dr. Roy Wolff
    Pedodontist, St. Louis, Missouri
17. HOW TO PRESENT DENTAL HEALTH TO CHILDREN OF ALL AGES
    Jacob Zack, B.A., M.A.
    Principal, Boys High School, Brooklyn, New York; Author of Public Speaking in Dental Health Education . . . *Basic Course.*

PROBLEM CLINICS

1. ANKYLOSED TEETH
   Dr. Elias Fass, Fairfield, Connecticut
   Instructor of Pedodontics, New York University, College of Dentistry.
2. INTERCEPTIVE ORTHODONTICS
   Dr. Sidney Kohn, Jersey City, New Jersey
   Professor of Pedodontics, Fairleigh Dickinson University Dental School; President of American Board of Pedodontics.
3. INTERNAL RESORPTION OF PULPOTOMIZED TEETH
   Dr. Ralph McDonald
   Professor of Pedodontics, Indiana University, School of Dentistry.
4. ROOT CANAL THERAPY FOR PRIMARY TEETH
   Dr. Bernard Rabinowitch, Beverly Hills, California

TABLE CLINICS AND DEMONSTRATIONS
(A Partial Listing)

1. John A. Bogert, D.D.S., Kansas City, Missouri
   "Oral Malignancies of Children."
2. A. E. Iverson, D.D.S., Kansas City, Missouri
   "The Management of Injuries to the Young, Permanent and Primary Anterior Dentition."
3. Benedict B. Kimmelman, D.D.S., Philadelphia, Pennsylvania
   "Toothbrushing, Its Techniques and Values."
4. J. P. McGuigan, D.D.S., Halifax, Nova Scotia
   "A Simple Intermediary Method of Protecting and Restoring to Function Fractured Anterior Teeth."
5. W. Neal Newton, D.D.S. and John E. Gilster, D.D.S., St. Louis, Missouri
   "Full Denture Service for the Patient with Anhydrotic Ectodermal Dysplasia."
6. Julian B. Raffkind, D.D.S. and Kenneth L. Cathey, D.D.S., San Antonio, Texas
   "Custom Matrix Band Technique."
7. Marvin Sniderman, D.D.S., Pittsburgh, Pennsylvania
   "Prescription Writing."
8. Paul Starkey, D.D.S., Dayton, Ohio
   "The Use of the Rubber Dam in Pedodontics."
9. Jerome D. Teitelbaum, D.D.S., Valley Stream, New York
   "At What Age Should a Patient Be Referred to an Orthodontist?"
10. Walter S. Weisz, D.D.S., Pittsburgh, Pennsylvania
    "The Reduction of Dental Decay by the Use of a Sodium Fluoride Mouthwash."

SYMPOSIUM ON PULP THERAPY

SUNDAY, SEPTEMBER 13—2:00 P.M.

Moderator

DR. MAURY MASSLER

Professor and Head of the Post-Graduate Department of Pedodontics, University of Illinois, College of Dentistry.

LECTURER:

DR. BERNARD RABINOWITCH, Beverly Hills, California

SUBJECT:

"Pulp Capping for Primary and Immature Permanent Teeth."

LECTURER:

DR. MICHAEL BUONOCORE

Research Coordinator Eastman Dental Dispensary, Rochester, New York.

SUBJECT:

"Vital Pulpotomy for Primary and Immature Permanent Teeth."

LECTURER:

DR. CHARLES A. SWEET, JR.

Former Associate Professor and Head of the Department of Pedodontics at the University of Southern California.

SUBJECT:

"Therapeutic Pulpotomy for Primary Teeth."

LECTURER:

DR. ISRAEL BENDER

Chief of Department of Dentistry, Albert Einstein Medical Center, Northern Division, Philadelphia, Pennsylvania.

SUBJECT:

"Pulpectomy for Primary and Immature Permanent Teeth.

PRE-REGISTRATION BLANK

Name .....
(Please print)

Address..... City..... State.....

Scientific Program

Kindly reserve space for me on Saturday, September 12 and Sunday, September 13, 1959, for the following:

Procedure

Please indicate your preference by marking in the spaces provided on the Application Blank, the number of the Clinic you wish to attend. Indicate second choice as well.

Every effort will be made to give you your first choice, but if that clinic is filled, you will be enrolled according to your second choice.

Saturday's registered clinics will be repeated on Sunday.

		1st choice	*2nd choice*
Registered Clinics	Saturday	.....	.....
	Sunday	.....	.....

	No. of clinics	*Amount*
1 clinic ($3.00)	.....	.....
2 clinics ($5.00)	.....	.....

Social Program

I also wish tickets for the following events:

		No. of tickets	*Amount*
Knickerbocker Welcome Party	($ 3.00) each	.....	.....
Ladies Brunch, Fashion Show and U.N. Tour	($ 8.00) each	.....	.....
Scientific Luncheon	($ 5.50) each	.....	.....
Cocktail Party and President's Banquet	($15.00) each	.....	.....
Farewell "Aloha" Party	($ 2.50) each	.....	.....
I enclose my check for:	Total		.....

Signature .....

Make your check payable to the
American Society of Dentistry for Children

Telephone Reservations Cannot Be Accepted

Mail to: Dr. M. Joel Freedman
300 West 23rd Street, New York 11, N. Y.

Dangers of Indiscriminate Hospitalization of The Pre-School Child

LEWIS J. RATTNER, D.D.S., M.S.D.* AND A. H. CHAPMAN, M.D.**

THE number of hospital admissions of children for dental procedures has increased in recent years. Hospital service has thus become an important addition to the pediatric dentist's armamentarium. It must, however, remain as an auxiliary service. Spence[1] states, "too often and too lightly is the decision made to confine children in hospitals." This is a condemnation all dentists must avoid. An explanation of some of the dangers inherent in this seemingly routine procedure is necessary.

PSYCHIC TRAUMA OF HOSPITALIZATION

Wallgren[2] and Bowlby[3] in other researches are led to the conclusion that hospitalization is a psychically traumatic experience for children. Bakwin[4] writes that despite advances in the knowledge of nutrition and better isolation against cross infection, infants tend to do poorly in hospitals. This is related to loneliness of the child which has increased with better isolation procedures. This loneliness is characterized as a lack of coddling and sympathetic stimulation by the mother as received in a normal home. Jessner, Blom and Waldfogel[5] followed a group of 143 children after tonsillectomies and adenoidectomies in the Boston Children's Hospital. These children had comparable hospitalization times to those undergoing dental procedures. Observation showed that for each child the operation was a great and stressful experience. It activated the childhood fears of mutilation, abandonment and death. More than a third of the reactions classified as severe were in the five year old or younger age group. Levy,[6] in a review of 124 cases, determined the incidence of untoward psychic reactions to operations to be 58 per cent in the 1-2 year age group and 33 per cent in the 2-3 year age group. The latter is the age group most involved with hospitalization for dental procedures.

The great reactivity of young children may be attributed to their greater dependence upon the home and the mother. They lack comprehension of events and outside-the-home experience. They likewise are less well equipped to handle anxiety than older children. To the young child the operation is an unreasonably raw and brutal experience.

Levy observed four broad categories of emotional responses: (1) Night terrors, (2) Fears, (3) Dependency, and (4) Negativism. Night terrors were of long duration, extending over months or years. Levy further examined the fears and found darkness, doctors and nurses, and strange men most common. Fear of the dark is directly related to dependency on the mother, and may lead to insomnia when dependence is severe. Chapman, Loeb, and Gibbons[7] include among postoperative personality problems: (a) Difficulties in eating, (b) Insomnia, (c) Enuresis, (d)

* Consultant for United Cerebral Palsy Group, San Mateo County and Teaching Associate at University of California School of Dentistry.

** Psychiatric Consultant, The Children's Mercy Hospital, Kansas City, Missouri.

Encopresis, (e) Regression, (f) Tics, (g) Depression, (h) Restlessness, (i) Anxiety, (j) Terrors, (k) Death Fears, (l) Mutism, (m) Autism, (n) Hypochondria and (o) Hysteria. Regressive behavior may be manifest with wetting, soiling and thumbsucking making a re-appearance.

Rosenbluth, Bowlby and Roudinesco[8] and Bowlby, Robertson and Rosenbluth[9] have shown that the 6 month to 5 year old child may experience striking changes in behavior upon being removed from the mother. Such altered initial responses as excessive clinging, hostility, and withdrawal may give way to an undiscriminating friendliness. This is an abnormal response in a young child. Mood may be of manic excitement or quite autistic with interest turning from persons to toys.

Overanxious and overprotective parents tend to increase the child's fears. In a difficult home situation where there is severe discipline, the operation may appear to the child as a form of punishment.

Upon reunion with the mother, two principal responses are noted (1) The child may cling to the loved mother figure with an intense possessiveness that may last for days, months, or years, or (2) Emotional rejection of the frustrating mother figure which had deserted him in his hour of need. In many instances, it is some hours before the young child recognizes the mother. During this period, he may be mute, unresponsive, or even actively hostile.

This split concept of the mother may be rationalized by the normal child within a short time. The affectionless or incipient psychopathic personality may develop under this trauma to where the integration is no longer automatic. The tenuous contact with reality is thus lost, possibly forever.

Lest this be thought to be a prerogative of older children, Putnam, in writing to Powers[10] states, "The possibility that painful experiences may be registered subcortically, and these may be the very ones most difficult to modify. . . ."

Psychic Effects of Anesthesia

Pediatric and dental anesthesia present special problems in addition to the well-known hazards of general anesthesia. The usual hazards and how to overcome them have been well documented by Douglas,[11] Smith,[12] Gross,[13] and others and are outside the scope of this paper. They alone are sufficient to urge caution in the election of this technique. Album,[14] a foremost advocate of the use of general anesthesia, warns that its use is not to be considered a crutch to be leaned on for all management problems.

Nelson[15] has mentioned factors that should receive special consideration. Emotional make-up of the child and the responses of the disturbed child to hypnotic and sedative drugs are vital considerations. Thompson and Linz[16] state that neuropsychiatric problems can result from unpleasant operating room experiences. Therefore, the length of stay in the hospital need not be regarded as relevant.

The sense of hearing may return to the anesthetized child before he regains full consciousness. It is at this point that dreams or abnormal visual or auditory distuurbances occur. The disturbed child during this period may lose contact with reality which will never be regained. Skillful, understanding nursing care, and psychologic management are an important part of postoperative treatment from this point until discharge from the hospital.

Anoxia is the commonest complica-

tion of anesthesia, and its detrimental effect on body tissue cannot help but compound the problems of the cerebral palsied and mentally retarded.

Discussion of Early Infantile Autism and Case Histories to Emphasize Need for Careful Investigation of Patient History Prior to Hospitalization

Since Kanner in 1943,[17] and 1944,[18] described the entity he referred to as early infantile autism, additional observations have been made by Despart,[19] Mahler,[20] Weil,[21] Cappon,[22] Creak,[23] and others until 105 cases have been gathered. The importance of this syndrome per se is negligible. A discussion of it will emphasize the importance of careful patient history prior to elective hospitalization.

The etiology of Early Infantile Autism is unknown. Symptomatology includes: (a) Autistic behavior with manifestations from the earliest stages of life, (b) Obsessiveness with an insistence on an unchanging environment, (c) Mutism; interference with autistic or obsessive behavior is usually defended by temper tantrums. The intelligence of these children may be unimpaired. Differential diagnosis must be made from (a) mental retardation, particularly difficult when the child is mute, (b) deafness, and (c) schizophrenia, less difficult at the earliest stages of illness. Bender,[24] determined schizophrenia more common in boys by 2.66 to 1, and this is paralleled by early infantile autism. Bakwin,[25] states that there have been no autopsy reports of brain damage in autistic children.

Kanner and Eisenberg[26] state prognosis is poor where the child continues mute after reaching school age. Where some social contact has been made, the prognosis will vary from poor to good for a suitable adjustment. These patients continue to display marked schizoid tendencies. None of the varieties of treatment employed by these investigators had any apparent effect on the illness.

Two case histories are presented in brief; one, of an autistic and one of a schizophrenic child. When presented at the Dental clinic of the Children's Mercy Hospital by referral from private dental practitioners as management problems, they had both been previously diagnosed psychiatrically. At first, they both appeared to be excellent candidates for a dental rehabilitation with the aid of general anesthesia. Upon learning of the patients' past histories, consultation was requested with the house staff psychiatrist. His opinion was to approach the autistic child as an object rather than a person and perform palliative dentistry until a possibly familiar routine could be introduced into her sphere of recognition. Due to the schizophrenic boy's previous experiences with dental treatment and his powerful physique, it was thought best to forego any attempt at treatment. No premedication and no attempts at forcefully gaining co-operation were to be utilized. Both these children were capable of co-operation to a degree at home. The possible benefits to be received from dental treatment could quite probably have been greatly offset by the psychic trauma to which they would have to be subjected and its consequences as set forth previously.

Case History No. 1

This six year old girl was first seen in the dental clinic where it was found that she was a completely mute, uncooperative child, who seemed extremely frightened. It was found very difficult

to establish the necessary rapport for proceeding with any kind of dental work. There were extensive carious lesions. The child had never been previously seen by a dentist and the dental work was extensive and urgent in nature.

Because it had been found extremely difficult to establish any kind of working relationship with the child, and her lack of cooperation had prevented any effective dental work being accomplished in several visits, the patient was considered for possible admission to the hospital for extensive dental rehabilitation under general anesthesia. Because of her unusual behavior, she was first referred to the psychiatric unit for evaluation. When the child was examined in the psychiatric unit she was found to be a completely mute, very withdrawn child. She made no kind of effective rapport or communication to other persons by gestures, facial expressions, or speech. She wandered about the room engaging in stereotyped movements and activities. She would shake her hands repeatedly and for periods of time in a meaningless repetitive way.

On history, it was found that this child had always been a very unresponsive child interpersonally. She had never made any effective emotional contact with anyone, and it was quite clear that she had been extremely autistic since infancy. She had a complete need to maintain the sameness of things about her. She compulsively closed drawers and rearranged items, in her room, to previous position. She was one of a large number of children, and her mother was found to be a very compulsive, cold, methodical woman. The father was a passive man who seemed to have some warmth for the child but had been unable to establish any kind of rapport with her.

Before Jane's illness, which required her hospitalization at six months, she was developing normally. She had just started to sit up and was saying "Mama and Dada." The mother had also started spoon-feedings with Jane, at about two months, and the child was taking spoon-feedings very well. She was also a bottle fed baby. Mother described the illness which immediately preceded Jane's hospitalization and which frightened mother greatly. She said that her children had had various illnesses, but she had never had a child who seemed as acutely ill as Jane did at that time. She had a high fever, vomited, and had diarrhea for a day before she was admitted to the hospital. The baby was in the hospital for five days and then released to her home, in a very much improved condition. However, the first day after she returned home, Jane refused to take any foods by spoon-feeding nor would she take anything but the milk from the bottle. She refused cup-feedings. When she was about nine months old, their doctor advised the mother that she would have to force the child to eat or she would become quite ill. For about three months, from nine months to twelve months, the mother had someone help her hold the child's hands while she literally forced food into her mouth. However, this method did not work as the child promptly vomited the food that was forced down. From one year to about two months ago, Jane has had nothing but homogenized milk from bottles. When she was around two years of age, mother tried to give her Vitamins in the milk, and this worked for a while. However, when Jane was three, she refused to take the bottle in which mother had placed the Vitamin preparation. She would never sit at the table with the family, although they

tried to get her to do this. She never asks for water, orange juice, or any other kind of liquids. Jane takes seven to eight bottles of eight ounces daily. She will never take these bottles unless she is in a reclining position in her crib. Mother usually gives her two bottles in her crib, before she gets out of bed at nine in the morning. After that time, she will come to her mother or any member of the family with her bottle, indicating that she wants somebody to fill it for her. She is usually put to bed around seven in the evening, and then takes two more bottles before she finally goes to sleep.

Jane began to walk at the age of two, but until recent months, was very awkward and stiff-legged in her movements. She did not crawl prior to walking. Mother began toilet training at the age of two, but has never been able to control her bowels or kidneys. Until they brought Jane to the Children's Hospital, the child had not been examined by their physician since she was eighteen months old. They stopped taking her to the doctor at that time, as Jane became greatly upset, cried, screamed, etc., whenever they took her to be examined. She has had relatively good health and there was no need to take her to a doctor. In the past three or four months, the parents have noticed that Jane is less upset by strangers, noises; and they decided to bring her to the Children's Hospital upon the suggestion of a friend. When Jane was four, they took her to the University Medical Center for an examination, but the child screamed so loudly that they did not wait to be seen.

It is to be noted that Jane said two words before the age of six months, and after the age of six months she learned a third word "NO." She said this word until she was four years of age, and since then has had no vocabulary whatsoever. Mother thinks that Jane understands a great deal that is said to her, and there is noted improvement in her comprehension since she first brought Jane to the Children's Hospital.

The doctor in the clinic advised the mother to put solid foods in the bottle and it surprised mother greatly that Jane would take this food in her milk. Since she has done so, there has been improvement in Jane's health, color, and general activity. Mother has tried spoon-feeding, but it is still not successful.

Until the past several months, Jane has become greatly upset whenever people visited in the home or when she was taken elsewhere to visit. In the past year, Jane has made friends with the mailman, and she smiles at him occasionally. This was a remarkable improvement over Jane's previous behavior.

Jane was a year and a half old when the next sibling was born. Until that time, the parents had given her a great deal of attention because they thought that she was so different from their older children and needed more attention. They did not think that she was retarded until she was about a year and a half old. When mother had the next youngest baby, the care of Jane was turned over to the oldest girl, Mary. Jane formed a very close attachment with Mary, and this continued until Mary married in August 1956. During that interval, Mary assumed most of the care of Jane, dressing her, looking after her feedings, etc. Since Mary left the home, the next oldest girl has the responsibility of Jane.

Upon consideration of all the data, it was felt that this was a rather typical case of early infantile autism. The prognosis in early infantile autism when the children are not speaking by the age

of five is extremely poor. It is felt, as a result of the psychiatric evaluation of this child, that in admitting this child to the hospital for extensive surgery and anesthesia might imperil the very marginal social adjustment that she was making outside the hospital. The parents were very anxious that the child remain in the home as long as possible, and know that there were no adequate facilities in the area for institutionalizing this type of patient. It was, therefore, urged that this child not be admitted for surgery and anesthesia, since this kind of child has a grave tendency to become even more disorganized in behavior when there are abrupt changes of environment. It is advised and urged that whatever dental work could be done, be attempted in the clinic on an out-patient basis.

Case History No. 2

Henry was a ten year old boy who was first seen in the dental clinic in January 1957. He was found to have extensive dental caries. On several visits to the clinic, it was found impossible to establish any kind of working rapport with this boy and he was consistently resistant to all overtures. He would not even tolerate examination of his mouth by a dentist.

The question was raised as to whether this boy should be admitted to the hospital for extensive dental work under a general anesthesia, since the need for dental work was urgent and any other approach seemed infeasible. Before such a step, diagnostic consultation by the psychiatric unit of the hospital was sought.

On examination by the psychiatric unit, it was found that this boy had a long history of prior psychiatric observation. He had been seen by a number of psychiatrists in the area, and all of them agreed that this was a severely withdrawn catatonic schizophrenic boy. This diagnosis had been carried by the patient since some time in late infancy. His mother had taken him to a variety of clinics and institutions seeking therapeutic help which, however, had never resulted in significent improvement in his behavior. Various therapeutic trials had been unsuccessful.

On examination he was found to be a completely mute, withdrawn boy who engaged in a variety of typical schizophrenic activities. He apparently hallucinated at times and engaged in stereotyped physical activities. At one point, he came to the examiner and crawled up in the examiner's arms and stayed there for a few minutes while he was rocked like a baby.

The only rapport and communication that could be established with the boy was on this extremely primitive, infantile, non-verbal level.

This boy had never been able to make any kind of adjustment in a school situation, and in spite of his severe psychotic behavior, was making a minimally adequate social adjustment in the home. The parents were most anxious to keep him in the home and not institutionalize him. Another significant problem, was that there were no specific public institutions available for the long term hospitalization for psychotic children.

It was felt that to admit this boy to the hospital and to proceed with dental surgery under general anesthetic would greatly imperil the social adjustment that the boy will be managing to make. It was felt probably, that the patient would, upon separation from the home situation, go into a period of catatonic excitement and that his behavior might become even more socially dis-

organized than it was at the present. It was felt that his behavior upon separation from the contact that he had had in the home, would probably degenerate into either an even more profound withdrawal or a wide destructive level. It was therefore advised, regardless of the urgency of the dental work, the best interest of the patient in his total development would be served by not admitting him to the hospital for extensive dental work under anesthesia. It was advised that future attempts might be made to work with this boy in the clinic, but that only the most guarded optimism could be held for the possibility that this boy's eventful cooperation could be obtained. It was felt that this, however, was far better than to expose him to the possibility of a more severe disorganization in his behavior which would make his return to the home impossible and institutionalization imperative.

Discussion

An attempt to highlight some of the psychically detrimental effects of hospitalization on the pre-school age child have been presented. It was brought out that the normal child will suffer from the effects of anesthesia, both psychically and organically due to hypoxia. In view of these findings, it is recommended that extraordinary care and judgment be utilized in the selection of patients for hospitalization. Every attempt should be made at attaining patient rapport. The use of premedication in others of these cases is suggested. During hospitalization, parents should be encouraged to visit as often as hospital rules will allow and, if possible, to be present, both prior to anesthetic induction and when the child awakes.

Dental procedures often take from three to four hours. Every effort should be made to shorten these operations through use of auxiliary personnel in the operating room (Rattner and Greer).[27] It should not be necessary to compromise the level of dental treatment. Where time is such an important factor, a serviceable level is the one for which to strive. Consideration should be given to the sequence or possibility of other operations as the compounding of trauma is a definite danger (Bakwin and Bakwin).[28] All elective procedures should be postponed until the child has reached an age of some understanding. Prior to and after the operation, the child should be encouraged to talk about his fears to help him relieve his anxiety. This may have to be led up to by the dentist or the parent.

If all these possibilities for trauma exist for normal children, they multiply tremendously for the brain-damaged child and the child who is either actively or latently psychotic. The hospitalization may well prove to be the straw that snaps their already tenuous hold on reality. Doubtful dental benefits must be exhaustively weighed against this possibility. Taking careful patient history and consultation with professional colleagues is presented as a safe and normal procedure to follow.

Summary

1. A brief explanation of psychic trauma from hospitalization and anesthesia to pre-school children is made.

2. Discussion of Early Infantile Autism and two case histories are included as examples of the extreme problem.

3. Discussion and suggestions for better case selectivity are presented.

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1958

Photos From Our National Meeting

Interceptive Orthodontics and Treatment Planning*

FRANCIS B. RUDINE, D.D.S.**

THE practice of pedodontics whether as a specialty or incorporated in general practice is no longer the neglected stepchild of our profession. Indeed, the progress made over the last fifteen years is a shining light for our comrades in the healing arts as well as the public to behold. During the infancy and early childhood of pediatric dentistry our efforts were largely in the fields of:

1. Patient management and the many ramifications therein including local anesthetic techniques, sedation and proper psychological understanding of children.
2. Improved cavity preparations with consideration for the morphological differences of primary teeth.
3. Continued research and development into methods for handling pulp exposures, so frequently encountered in the restoration of primary and young permanent teeth.
4. Diagnosis with emphasis on x-ray techniques and adoption of faster films.
5. Caries prevention.

The later childhood of dentistry for children showed a greater emphasis upon what was known as Tooth Guidance. It became evident to those men working with children that a great percentage of the orthodontic cases presenting at treatment age could have been intercepted. Thus, various techniques were employed in the younger age groups with the aim of correcting minor irregularities. These procedures were instituted at first by only a small percentage of dentists working for children but as time went on with increased emphasis on formal training this work became an integral part of our practice. The average practitioner has become extremely proficient in what we may call the routine aspects of pedodontics, i.e., patient management, cavity preparations, etc. These facets of practice which formerly demanded a more intense interest on our part due to the need for training and experience as well as the development of better methods are now generally less challenging to most of us. As a result the stimulus for creative thought is turning more and more to problems of dento-facial growth and development.

Adolescence in the practice of pedodontics may be likened to the same period in human development in that at this time of transition there is a certain amount of confusion and wonderment resulting from newly obtained knowledge and growth. In addition, criticism from the older and supposedly wiser parent is omnipresent. The human adolescent evaluates and appraises this parental advice with the eventual adoption of ideas and principles to govern his adult life. We are at this same approximate stage in the life cycle of pediatric dentistry. Our future efforts in interceptive orthodontics should include

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a more definitive classification of treatment and definition of purpose in order to clarify in our own minds as well as that of the public and our "parent," the orthodontist, just exactly what we are trying to accomplish. As the adolescent child is criticized by his elders, so have we of recent years been questioned by the orthodontist as to the area within which our procedures are effected. It seems apparent that we must adopt a more clearly defined classification of those cases amenable to treatment by the pedodontist before we shall pass from adolescence to adulthood as a specialty of the dental profession.

Please do not interpret my words to mean that I personally think that the orthodontist is 100 per cent correct in his objections to some of our procedures. On the contrary, the basic reason for the dilemma is the multiplicity of opinions among orthodontists as well as in our own group as to limitations and aims of interceptive procedures. I illustrate this point by giving to you definitions which I gathered in conversation with three different practitioners:

1. Interceptive orthodontics should be limited to the movement of a single tooth.
2. The scope of practice of these procedures is limited by the individual's (the dentist) experience and training.
3. The pedodontist should confine his efforts to the maintenance or the regaining of arch length due to early extraction of primary teeth.

From these remarks we could interpret the field within which we operate to be extremely limited or perhaps on the other hand quite broad. There is at present no basis for diagnosis and treatment recognized by both the orthodontist and pedodontist. I should like to emphasize that it is *not* a question as to which of the previously mentioned specialists should accomplish these procedures, but rather a problem of orienting our thinking along similar lines in the field of interceptive orthodontics as differentiated from orthodontics. It shall be my purpose to attempt to add some light to those so often asked questions: "What constitutes interceptive orthodontics?" and "Where does interceptive orthodontics leave off and orthodontics begin?" These questions have been well explored by Salzman, Spencer and many others. Yet we find that in our preoccupation with mechanical therapy, the basic reasons for interception often become vague, if not lost entirely.

In this age of semantics, consideration must be given to definition in order to avoid confusion and misinterpretation. I feel that the choice of "interceptive" rather than "preventive" is important. By definition, to intercept is to "stop or interrupt the progress or course of" a given problem. To prevent is "to keep from happening." If it should seem that the difference in meaning between these two terms is so slight as to be of little importance, may I call your attention to the use of "intercept" in the game of football. When a pass is intercepted, the player not only stops the forward progress of the ball but returns it in a new direction more favorable to his team. The term "preventive" in our discussion can be compared to the blocking of a pass in football where the movement of the ball is stopped entirely. To use the descriptive term "preventive orthodontics" may imply to the patient, parent, student of dentistry, or graduate dentist that any treatment under this heading will dismiss the need for orthodontics in the future. This, of

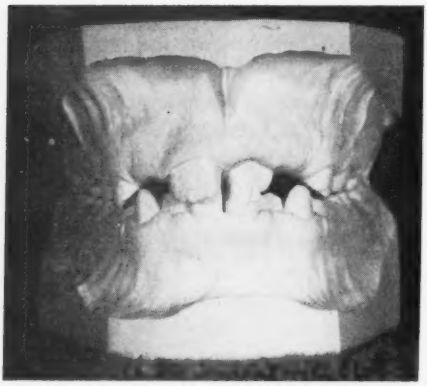


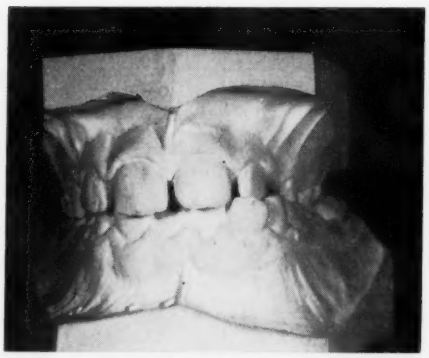
FIGURE 1. Tooth Guidance.

course, would be an ideal goal and in some instances can be achieved. However, there are many cases which need future orthodontic follow-up care. Therefore, the use of the term "interceptive orthodontics" is preferable, interpreted to be those measures instituted which have for their objective the maintenance or enhancement of normal growth and development within the growth pattern of the individual. The terms, "preventive orthodontics" and "tooth guidance" should be limited in their application to those cases which they specifically describe. We might define preventive orthodontics as those procedures which eliminate the need for further orthodontic treatment. Tooth guidance is any technique applied during the eruptive stage to allow for more optimum positioning of individual teeth in the arch (Figure 1).

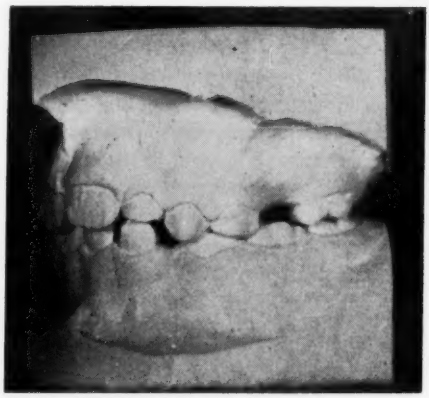
To illustrate the application of this definition to the selection of cases for interceptive therapy we might think of two different patients, age eight years (Figure 2). Patient A is in Angle Class I molar relationship with a posterior unilateral cross bite extending from cuspid through the first permanent molar. Patient B is in Angle Class II molar relationship showing a possible discrepancy in the anterior region. The upper second primary molars are prematurely missing due to ectopic eruption of the first permanent molars which have erupted into a mesial position. Analyzing these two cases we come to these conclusions:

PATIENT A

1. Normal lateral maxillary development on the affected side is being adversely affected.
2. The midline of the mandible and maxilla is not coinciding. This, be-



PATIENT "A"



PATIENT "B"

FIGURE 2.

ing a necessary convenience centric relationship, causes abnormal condylar growth on both sides.

Patient B

1. The mesial relationship of the maxilla is an inherited factor.
2. The discrepancy between tooth size and bone growth potential is also due to genetics.
3. The loss of arch length caused by premature loss of the primary molars will vastly complicate eventual orthodontic therapy.

It is apparent upon examination that corrective measures are indicated for both children. Treatment for Patient A should be accomplished to allow for normal growth within the inherited growth pattern. Patient B's problem involves interference into the hereditary positioning of the arches as well as the treatment to prevent space loss and impaction of the second bicuspid. When we apply our definition to these cases, we find that Patient A comes fully within the aim and limitations of interceptive orthodontics and that Patient B is in need of orthodontic treatment and observation to correct an inherited malrelationship. However, the interceptive procedure of repositioning the upper permanent molars must be considered and if after consultation with the orthodontist, is still deemed advisable, should be accomplished in order to prevent complication of future orthodontics.

May I repeat, that any measures instituted which have for their objective the allowing for, or the enhancing of normal growth and development within the growth pattern of the individual are to be considered within the field of interceptive orthodontics. The pedodontists' efforts in this field should probably be limited to cases where satisfactory results can be achieved by a tipping type movement of the teeth and where sufficient space can be demonstrated in the arch for the repositioned tooth. With this objective in view it is readily seen that it is of vital importance to any of our efforts to acquire a sound knowledge of growth and development. Whenever interceptive orthodontic procedures are to be considered, a positive answer must be given to the question: "Does this therapy promote a more normal growth for this individual?"

Thus far in our discussion we have dealt with the orthodontic phase of interceptive orthodontics. However, in a broad sense, the mission of dentistry for children lies to a great extent in preserving the dental structures in a state of health, insuring the maximum arch length possible for a given patient. I think that it is very obvious to all of us that the restoration of a carious tooth is an example of interceptive orthodontics in its simplest but finest form. We should never become so enthusiastic about the placing of space maintainers or correcting cross bites that we neglect the diagnosis and treatment of our old antagonist, "Dental Caries." There has not yet been developed, to my knowledge, a space maintainer as efficient as the primary tooth.

Diagnostic Procedures

Good oral diagnosis is built with the use of four main tools: Radiographic evidence, clinical examination, study models and case history analysis. It would be idealistic and far from realistic if I should say that every patient whom we see in our offices should have this type of examination. However, when it is visually obvious that there is

some deviation from the normal development for the child, we must routinely employ the above mentioned tools without exception before treatment is instituted.

Radiographic Examination

It is recommended that a full mouth survey be made for each case in which interceptive orthodontics is to be considered. The technique including bitewings and anterior films only, is adequate for the determination of caries and a fairly good percentage of other anomalies. However, assuming this procedure to be 80 per cent efficient, we would still be missing 20 per cent of the conditions of which we should be cognizant when making a diagnosis and treatment plan. The proper diagnosis is difficult enough to arrive at without handicapping ourselves to begin with by not obtaining adequate radiographs. It is probably redundant on my part to make these remarks. However, in these times with the pressure upon us by some patients not to take radiographs, I think it is worthy to emphasize that the value received from the careful utilization of radiographs certainly outweighs any known evidence to the contrary. For example, it would be very embarrassing to find, after trying without success, to retract two maxillary centrals by the use of an Atkinson appliance, that a lingually placed mesiodens was preventing lingual movement.

All radiographs should, of course, be mounted and read in a dry state. It is dangerous to make a final decision regarding a particular situation from a wet reading. Incipient caries as well as the beginning formation of a supernumerary tooth are not always obvious in a wet film. There have been instances where mistakenly we have decided that late developing bicuspids were missing. Part of the blame for this could possibly be laid to reading films before they dry. From the standpoint of interceptive orthodontics we should consider the following factors in radiographic interpretation:

1. The presence or absence of the permanent tooth buds.
2. The dental age of the patient as differentiated from the chronological age.
3. Ectopic eruption of permanent teeth.
4. Supernumerary tooth presence and location.
5. Cyst formation around unerupted teeth.
6. The approximate size of the developing teeth.
7. The location of dental caries.
8. Ankylosed primary teeth roots.

This is a summary of the main points which should always be kept in mind. It may be unnecessary for this part of our diagnosis to be emphasized when speaking to a group of this merit. You are probably thinking to yourselves that this is "Kindergarten Dentistry." Yet, there are instances where interceptive therapy is attempted without thorough evaluation of radiographic findings. Adequate record of each patient's radiographic diagnosis should be kept by way of systematically recording on the history card exactly what was found. This is of inestimable value during treatment and also from the dento-legal standpoint if anything unforeseen results.

Clinical Examination

When considering clinical evaluation of a patient, we should not confine our observations to the mouth. Upon seeing

a child for the first visit, it is most advisable to observe the following:

1. Emotional Disposition—This may be the determining factor when making the choice between a removable or fixed type of appliance.
2. Appearance of the Fingers and Fingernails—Callous formation and bitten nails may indicate a possible cause of malocclusion.
3. General Physical Appearance—This may lead to the recommendation for medical consultation before completing the diagnosis for possible therapy.
4. Dental Aptitude—This is an intangible factor not easily described but most important in that patient cooperation is tantamount to success.

The successful dentist for children must casually but carefully note the previously mentioned points when considering interceptive orthodontic procedures. It is one thing to be able to manage children in the office and another to be able to depend on their cooperation and attention to our efforts when they are away from us. I believe that it is just as important to design the method of treatment for a particular child's physical and mental characteristics as it is to apply the proper technique to intercept a given problem in growth and development.

When accomplishing the oral examination, it is not enough to merely look at the teeth. We must also account for the following:

1. The Tongue—Its size and position during deglutition and at rest should be observed—keeping in mind the etiology of some open bites and protrusions.
2. The Cheek and Lips—Their actions are acknowledged to be most instrumental in the shaping of the arches during the growth period.
3. Inspection of the Pharyngeal Region—Enlarged tonsils, if present, should be noted and at this time it is advisable to check the breathing potential of the child insofar as the nose is concerned. Excessive adenoidal tissue or an allergic rhinitis can create a mouth breathing problem.
4. Superior and Inferior Labial Frenums—Any abnormal attachment should be noted.
5. Alveolar Contour—Unusual prominences of the bone should be evaluated as to etiology.

Any abnormalities should be recorded on the patient's history card and carefully re-evaluated when completing the diagnosis. The positioning of the teeth in the arch and in centric closure is then to be checked, keeping the following in mind:

1. Molar Relationships—This, of course, is our primary key for the determination of hereditary malocclusions.
2. Interarch relationship of the incisors.
3. Irregular Incisor Alignment—If present, the etiology should be determined.
4. Cross-bite Relationships—Must be evaluated as to cause and effect.
5. Open and Excessively Closed Bites—The significance of such is to be considered.
6. Broken arch continuity due to premature exfoliation or extraction of primary teeth.
7. Supernumerary Teeth—Primary or permanent.
8. Submerged Primary Molars—The

positioning of the approximating and opposing teeth is to be observed also.

9. The Eruption of Permanent Teeth —Accounting for any variation of position or sequence beyond the normal limit.

In summary of the clinical examination, may I state that any abnormalities of growth and development must be given evaluation keeping in mind hereditary and developmental factors as well as the dental age of the patient. It is our purpose to guide the dentitions within the normal limits for each individual.

Study Models

Neat and accurate study models are essential for each case showing obvious growth and development abnormality. Some of us have been criticized by the orthodontist for our haphazard attention to the fabrication of this extremely vital part of our work. The models of a case are graphic evidence to the patient or to anyone else with whom we discuss it. The appearance of the casts can indict or build confidence in our ability depending upon how they look. The dentist performing interceptive techniques will certainly gain more in prestige from his colleagues as well as his patients if attention is given to the taking of impressions and the technique of trimming study models.

The orthodontic type of impression differs from the prosthetic in that the periphery of the tray must be built up with utility wax in order to obtain a greater amount of the anatomical portion for diagnostic purposes. The impression should be poured in snow white plaster and then trimmed according to the method described by Dewey. This is a relatively simple procedure and for our purposes quite sufficient. Care must be given to the finishing process, i.e., all bubbles should be filled and the model sanded and polished.

The study models of a given case are the permanent record of the conditions existing prior to treatment or observation and it is foolish to rely on our memory to determine changes in growth or tooth position. They are also most necessary to substantiate or revise the tentative diagnosis made from visual clinical examination. It is not uncommon that our initial opinion is changed after careful study of the models.

Case History

The parents' medical history should be obtained as part of the patient's written record. This is an aid in determining the presence in the patient of systemic disturbances which may have their origin in genetics, endocrinopathy, malnutrition, or other diathetic conditions.

The family dental history should be screened as to peridontal disease, marked caries, the prevailing types of malocclusion, abnormalities of the lips and facial muscles of the parents, brothers, and sisters. These are hereditary predisposing factors which are helpful in differential diagnosis for interceptive treatment.

The patient's medical history is important to determine the course and prognosis of treatment. Such history should include congenital or acquired defects, nutritional status, loss of weight, presence of infection, allergic manifestations, endocrine disturbances and other diseases as well as accidental injuries.

The analysis of the previously mentioned factors coupled with radiographic and clinical findings leads us to the establishment of the etiology. This will

generally fall into one of three categories, namely: Hereditary, acquired, or a combination of the two. From this determination, it is possible to apply our definition of interceptive orthodontics and find that our treatment efforts should come within the acquired category and possibly the hereditary-acquired. I feel that from our standpoint the danger limit in the scope of treatment is the involvement in cases of hereditary etiology. This type malocclusions, by their very nature, demand extensive treatment over a long period of time and the orthodontist is the only one equipped by training to carry them to completion. Again, I should like to emphasize that the field of interceptive orthodontics embraces those procedures which are necessitated in order to allow for normal development within the inherited potential of the child. These procedures can be mechanical in nature using removable or fixed orthodontic appliances. They can be the judicious restoration of the primary teeth by operative, or endodontic methods (Figure 3). They can be the elimination of mouth habits which interfere with normal growth. In fact, as I have previously stated, interceptive orthodontics and pedodontics are almost synonymous in their objectives. Thus, keeping each in mind, it is easy to see where the definition and limitation of practice of interceptive procedures can be applied.

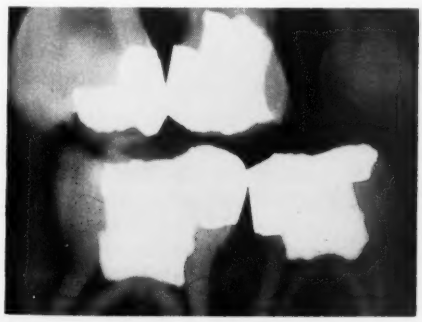


FIGURE 3. Operative and Endodontic Examples of Interceptive Orthodontics.

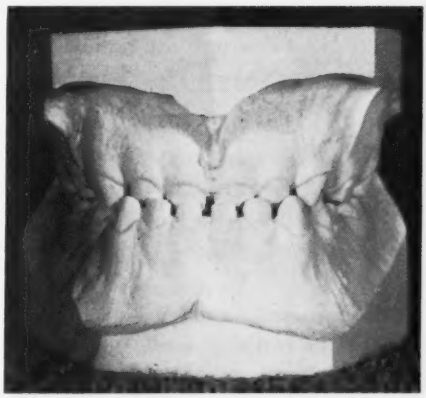


FIGURE 4. Anterior Cross Bite.

When considering an individual case for diagnosis and treatment we must assemble all of the facts. From this it is possible to see what we have to work with and also that which limits our efforts. Figure 4 is a typical interceptive orthodontic situation with a suggested case analysis.

ANTERIOR CROSS BITE
(Age 4 years)

1. Molar and cuspid relationship normal.
2. BA | AB occlude lingually to $\overline{\text{CBA} \mid \text{ABC}}$.
3. Premaxillary region shows lack of anterior development.
4. Anterior mandibular growth is normal.
5. Patient is able to obtain edge to edge bite relationship by retruding mandible.

Reasons for Treating

1. Prevent Class III tendency, i.e., avoid excessive condylar growth.

2. Enhance premaxillary development.
3. 21 | 12 may erupt into normal relationship with 21 | 12.

Prognosis

1. Good for 1 and 2 above. However, 21 | 12 may still erupt lingually but simple treatment would correct it.
2. Extensive orthodontics should be unnecessary.

In summary I would like to say that those of us in the practice of pediatric dentistry should take genuine pride in the standard of practice in our field. We owe a great deal to the early workers who have done so much and given us the heritage which allows us to perform dental services efficiently for children. I don't believe that there is another branch of the healing arts having the difficult problem concerning pain elimination, that demands such absolute patient cooperation for proper treatment. The fact that our proficiency has developed to the point where we are able to accomplish these aims with relative ease is to our credit. After the abolishment of pain and disease, the most important aspect of pedodontics is prevention. This, of course, has many facets but the one which we are interested in today is that of interceptive orthodontics. I believe that we should realize the aims and potentials of these practices, temper them with the knowledge of intelligent limitation to the point where we shall resist the ever-present temptation to go beyond our established realm. This having been achieved, we shall have reached maturity as a dental specialty with the respect and stature to which we are entitled.

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Relation Between the Eruption of Selected Mandibular Permanent Teeth and the Circumpuberal Acceleration in Stature*

HOWARD V. MEREDITH, Ph.D.**

THERE long has been interest in finding a simple measure to represent what is termed the "physiologic age" of a child, or, the biologic "maturation of an individual."[1] As early as 1914 Bean[2] suggested that the desired two-facet criterion of simplicity with general organic validity might be satisfied by a dental measure. He wrote: "The teeth are more convenient as a means of determining the physiological standard than stature, or weight, or the growth of the bones, or secondary sexual characters, etc., and they *may* be of greater value than any other means that can be utilized."

Interest in the search for a parsimonious means of determining overall physiologic status stems usually from the assumption that "an intimate relationship exists in the physical maturation of various tissue systems."[3] However, taken collectively, studies to date on the association between tooth eruption (odontic system) and stature (osseous system) have tended not to support this hypothesis of high concomitance.[4, 5, 6, 7, 8]

The present report has two aims: (1) to formulate some previously uninvestigated relationships between stature and odontiasis and (2) to present findings on these relationships. For stature, the variate used is age when the maximum of the circumpuberal acceleration or "spurt" is reached. For odontiasis, the primary variate is age at the first appearance above the oral mucosa of the mandibular permanent canine teeth. Additional variates are age of eruption of the mandibular permanent first molar teeth and age of eruption of the mandibular permanent second molar teeth.

STATEMENT OF PROBLEM

The central problem may be developed as follows:

1. It is known that on the average there is a marked sex difference in the timing of the circumpuberal acceleration in stature. The crest of the hump that characterizes the circumpuberal or adolescent portion of the increment curve for stature is attained fully two years earlier by the typical girl than by the typical boy.[9]

2. It is known that on the average there is a marked sex difference in the timing of eruption of the mandibular permanent canine teeth. The typical boy lags in relation to the typical girl more with respect to eruption of these teeth than with respect to eruption of any other teeth.[10, 11, 12, 13] A synthesis of the major studies for mandibular canine eruption in white children yields means on the two sexes that differ by approximately one year.

3. The sex differences in average age of occurrence of the above phenomena

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suggest the possibility that the two phenomena are related. It is hypothesized that in the event a common factor underlies these systematic osseous and odontic sex relations, this factor (whether unitary or complex) will manifest itself in correlation of the two variates.

Study of the central problem is supplemented with study of two other associations. Taking cognizance of reports published in 1952[8] and 1956,[3] it appeared apropos to investigate relationships between age of the circumpuberal acceleration in stature and age of eruption of the mandibular permanent first and second molar teeth. Selection of these molar variates made possible correlation analyses near the lower and upper ends of the eruption sequence for the permanent dentition.

Subjects and Data

The subjects were 72 children, 43 girls and 29 boys, living in or near Iowa City, Iowa. All were voluntary participants in a long-term research program at the State University of Iowa under the joint sponsorship of the Department of Orthodontics and the Iowa Child Welfare Research Station. Acceptance in the program was based on likelihood of continuing residence in the region and willingness to cooperate; it was uninfluenced by dental condition or need. In the aggregate, the subjects constitute a group of American-born white children predominantly of northwest European descent and above average in socioeconomic status.

Each subject was examined at six-month intervals beginning at age 5 years and continuing until after the adolescent acceleration in stature. The materials obtained at these semiannual examinations included measurements of stature and alginate impressions of the mandibular dental arch.

Stature was measured as the distance from the vertex to the plantar surfaces of the feet, the subject standing erect against a vertical anthropometric board. The most medial aspects of the heels were approximately three centimeters apart, and the posterior surfaces of the heels, buttocks, and mid-thoracic portion of the trunk contacted the board. With the child positioned in this manner, a sliding headpiece was brought into firm contact with the vertex and the measurement read from an inlaid millimeter scale.

At every examination stature was measured by two anthropometrists. In instances where these measures differed by more than two millimeters each anthropometrist took an additional measurement. Consequently, each stature record was either the average of two determinations or the average of four determinations.

The same method as described in an earlier paper[9] was utilized in estimating the age at which the crest of the adolescent acceleration in stature was attained. Concisely: (1) the stature records for a given subject were used to derive a series of semiannual accretions, (2) this series of values was plotted, providing the basis for drawing an absolute increment curve by the graphical method, and (3) the age corresponding with the maximum of the circumpuberal hump in the curve was recorded. Step three was carried out on each of the 72 graphs independently by the writer and by E. Matilda Meredith. Estimates were made to the nearest month; where the two estimates for a subject did not coincide their midpoint was used.

Returning to the alginate impressions of the mandibular dental arch, these were transposed to hydrocal casts. Special care was maintained, first by L. Bodine Higley and later by Ernest H.

Hixon, both in the taking of impressions and in cast preparation.

By seriatim inspection of the casts for each subject, data were secured for age of eruption of the mandibular permanent canine teeth. Eruption age was estimated to the nearest month for the left tooth and the right tooth. Independent estimates were made by the writer and by Virginia B. Knott; where the two estimates for a given tooth did not coincide their midpoint was utilized. On the children of each sex, a Pearson product-moment coefficient of $r = 0.93$ was obtained for covariation of eruption age of the right canine tooth with eruption age of its antimere. In view of this close association, data for "age of eruption of the mandibular permanent canine teeth" were derived by averaging each pair of eruption ages for the two sides of the arch.

The procedural steps followed in obtaining the canine data were repeated in securing comparable data for age of eruption of the mandibular permanent first and second molar teeth. Again, independent eruption-age estimates by H. V. M. and V. B. K. for a tooth and its antimere were pooled.

Findings

Table 1 presents the statistics obtained from correlating age at which the peak of the adolescent stature acceleration is reached and age of eruption of the mandibular permanent canine, first molar, and second molar teeth. This group of correlation coefficients, together with the results from appropriate significance tests, makes untenable the view that there is high relationship between occurrence of the circumpuberal acceleration in stature and eruption of any of the three pairs of teeth chosen for study. More explicitly, the present investigation:

TABLE 1
CORRELATION STATISTICS FOR AGE WHEN THE CREST OF THE CIRCUMPUBERAL STATURE ACCELERATION IS ATTAINED AND AGE WHEN EACH OF THREE PAIRS OF MANDIBULAR PERMANENT TEETH ERUPT

Odontic Variate	*Correlation Coefficient, r*	
	Girls*	Boys
Eruption age of permanent:		
Lower canine teeth	0.31	0.31
Lower first molar teeth	0.19	−0.22
Lower second molar teeth	0.20	−0.01

* N = 43 for girls and 29 for boys.

1. Supplies tenuous grounds supporting the inference of a low positive association between age of eruption of the mandibular permanent canine teeth and age of reaching the crest of the circumpuberal acceleration in stature.* Possibly, since these grounds are not highly dependable, it would be more acceptable scientifically to infer that covariation in the population is neither high nor moderately high, leaving open the more equivocal matter of whether in fact the two variates are slightly associated or independent.

2. Provides no basis for positing concomitant variation in time of the adolescent stature acceleration and time of eruption of the mandibular permanent first or second molar teeth. For N's of 43 and 29 it is required that obtained r's exceed 0.29 and 0.36, respectively, in order to reject with reasonable confidence the (testable) hypothesis of zero correlation in the population.**

On the assumption that $r = 0.30$ symbolizes the true association between eruption of the mandibular permanent canine teeth and occurrence of the circumpuberal stature acceleration, what would be implied? From the viewpoint

* See Lindquist,[11] pp. 210-212.

** *Ibid.*

of biologic theory, less than 10 per cent of the variance in canine eruption would be associated with variance in stature acceleration. From the viewpoint of clinical practice, information on age of eruption of a child's mandibular permanent teeth would be of little value for predicting the age of his adolescent spurt in stature, or vice versa. The index of forecasting efficiency when $r = 0.30$ is less than 5 per cent. For example, age of the crest of the circumpuberal stature acceleration in individual girls (a) would have a standard error approximating 1.02 years if estimated from eruption age of the individual's mandibular permanent canine teeth and (b) would have a corresponding error of approximately 1.07 years if "guessed" at the mean age for the peak of the adolescent stature acceleration in girls.*

Summary

This investigation presents findings relevant to the broad biologic question of whether "an intimate relationship exists in the physical maturation of various tissue systems."[3] Three developmental variates of the odontic system are studied in relation to a developmental variate of the osseous system. The subjects are 72 American-born white children largely of northwest European ancestry.

For each association investigated, the "intimate relationship" hypothesis is indicated not to be tenable. Specifically, (1) age of the circumpuberal acceleration in stature and ages at eruption of the mandibular permanent first and second molar teeth appear to vary independently, while (2) there is no more than slight covariation for age of eruption of the mandibular permanent canine teeth and age of the adolescent stature acceleration. It is concluded that individual differences in timing of the osseous event and individual differences in timing of the odontic events neither have the same, nor similar, physiologic determinants.

* For statistical expositions pertaining to the statements in this paragraph, see Guilford,[15] pp. 407-412, and Meredith,[16] p. 97.

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MINUTES OF THE ANNUAL BUSINESS MEETING AMERICAN SOCIETY OF DENTISTRY FOR CHILDREN

ADOLPHUS HOTEL, DALLAS, TEXAS
NOVEMBER 8, 1958

The meeting was called to order at 3:30 P.M. by President Albert L. Anderson.

The first order of business was a consideration of the Minutes of the last Annual Meeting.

Dr. Paul Weber moved (seconded by Dr. Higue) that: THE MINUTES OF THE LAST ANNUAL MEETING BE ACCEPTED AS PUBLISHED. The motion was passed.

Dr. Anderson then read his President's Address. President Anderson then called on Dr. Addelston for the Reference Committee Report on the President's Address.

REFERENCE COMMITTEE REPORT ON THE PRESIDENT'S ADDRESS

The A.S.D.C. has been indeed fortunate in having a man like Al Anderson climb the ladder of officership to the Presidency. He has seized each succeeding task and has never failed to do each duty as it came to him. Nor, has he done merely the tasks required. He has stimulated his fellow officers and committee chairmen. He has displayed initiative and has been dogged in pursuing the aims of our organization. This Reference Committee is happy to commend him for his efforts.

There is no need for us to repeat his review of the work of his administration of the past year. In his report, he has done that admirably.

A careful review of this report, however, shows that he has, in a very gentle way, indicated some paths that he suggests we follow in the future. The Reference Committee would like to comment upon these hidden recommendations.

1. We agree with his feeling of pride in the accomplishment of our liaison with the American Academy of Pediatrics and we recommend that future administrations be directed to pursue this diligently.

2. The Reference Committee is not satisfied with the lack of clarity of the present student membership program. We are glad that some kinks have been worked out during this year and we join with President Anderson in hoping that a more definitive position can be reached concerning this very important phase of our activity. This organization was formed and developed to promote dentistry for children. There is no doubt that strongest steps towards future growth must start with the young men and women who are entering our profession. We must enlist them as students and keep them with us. The Reference Committee recommends that the next administration be directed to pursue this activity in a forthright manner.

3. We concur with President Anderson's happiness in the improvement of our relationship with the A.D.A.; with both Dr. Cruttenden's office and Dr. Sandell's. The Reference Committee recommends that the next administration be directed to continue to develop this improving relationship.

4. This Reference Committee has carefully studied President Anderson's comments about our financial structure. We are not dismayed by a budget which suggests a possible $500.00 deficit. There comes a time when it is necessary to spend, even of one's capital assets, in order to stimulate growth and financial improvement in the future. We concur with his suggestion that a "dues raise would not be out of line." Since the President has referred this matter specifically to the Budget Committee, we can but take the liberty of suggesting to that committee that we feel very strongly that A.S.D.C. has achieved maturity; we are no longer playing for buttons, we are playing for keeps. We believe that A.S.D.C. has a functional place in dentistry and that it is not necessary to attract members with small dues. We have major accom-

plishments in our history, important activities currently, and a future with far horizons. These are the reasons for membership; dues should be commensurate with our work. It is time for a raise. The Reference Committee hopes that the Budget Committee will recommend a really adequate increase in dues.

5. The Reference Committee is aware of the fact that President Anderson's comments concerning an Executive Secretary are subject to a report from a special committee set up for this purpose. We commend the President for his leadership in this matter and hope that this meeting will support him in his efforts to provide an Executive Secretary for A.S.D.C.

6. The Reference Committee is completely sympathetic towards President Anderson's feeling that a way must be found to make it possible for all dentists to become active members of our organization. Since he has referred this problem specifically to the By-Laws Committee, we can but hope that this committee will study this problem thoroughly and in due time present us with an adequate solution.

The Reference Committee must concur with President Anderson's congratulations to Jim Simmons and all the wonderful Texans for providing us with another great meeting.

Finally, the Reference Committee would like to take this opportunity of recording with great pride that A.S.D.C. has been able to develop and then make use of as grand a man as President Al Anderson.

Respectfully submitted,

DAVID LAW
HENRY WILBUR
HAROLD K. ADDELSTON, *Chairman*

Dr. Kauffman moved (seconded by Dr. Freedman) that: THE REFERENCE COMMITTEE REPORT ON THE PRESIDENT'S ADDRESS BE RECEIVED. The motion was passed.

Dr. Alfred Seyler then made the report of the Committee on the Executive Secretaryship.

Dr. Seyler moved (seconded by Dr. Freedman) that: THE REPORT OF THE COMMITTEE ON THE EXECUTIVE SECRETARYSHIP BE ADOPTED. The motion was passed.

REPORT OF THE CONSTITUTION AND BY-LAWS COMMITTEE

In keeping with a broadening concept of membership requirements in the A.S.D.C., we recommend changing of Section 2 of Article III of the Constitution from "Active membership in the Society shall be limited to members of the American Canadian Dental Association" to "Active membership in the Society shall be limited to members of the American Dental Association, the Canadian Dental Association, or any national dental association recognized by the A.D.A." Dated November 6, 1958, Alfred E. Seyler, Lawrence Burdge, Chairman.

Dr. Freedman moved (seconded by Dr. Carter) that: THE REPORT OF THE CONSTITUTION AND BY-LAWS COMMITTEE BE ACCEPTED, AND THE CHANGES BE PUBLISHED IN THE JOURNAL SO THAT THEY CAN BE ACTED UPON AT THE NEXT ANNUAL MEETING. Dr. Anderson indicated this would be printed in the JOURNAL and would be voted on by the delegates at the Annual Meeting in New York. The motion was passed.

REFERENCE REPORT ON THE CONSTITUTION AND BY-LAWS COMMITTEE

The By-Laws changes suggested were carefully designed to permit admission to membership of any individual who is a member of any national dental organization, which is recognized by the American Dental Association. Such members will be carried as members-at-large when they are ineligible for membership in the local state unit.

Your Reference Committee recommends the passage of the proposed By-Laws changes.

Respectfully submitted,

HAROLD K. ADDELSTON
WILLIAM E. BROWN
C. FRANK TUMA, *Chairman*

President Anderson then called on Dr. Simmons, who indicated we had 224 registered members, 134 guests and he also reported 153 banquet tickets had been sold.

Dr. Anderson then called for the Reference Committee Report on the Community Dental Health Programs Committee, given by Dr. Addelston.

REFERENCE COMMITTEE REPORT ON THE COMMUNITY DENTAL HEALTH PROGRAMS COMMITTEE

The Reference Committee notes with great pride that this committee reports the production of a series of four articles during the present year. The Committee is pleased with the work of the Community Dental Health Programs Committee this year and comments favorably on the committee's plan to prepare an additional series of short articles which would describe four types of effective local dental health programs. The plan of the committee is sound and the Reference Committee feels it will be interesting to read the articles. The committee members are commended for their good work.

Respectfully submitted,

DAVID LAW, *Chairman*

Dr. Addelston moved (seconded by Dr. Brown) that: THE REPORT OF THE REFERENCE COMMITTEE ON THE COMMUNITY DENTAL HEALTH PROGRAMS COMMITTEE BE ACCEPTED. The motion was passed.

REFERENCE COMMITTEE REPORT ON THE EDITORIAL AND PUBLICATIONS COMMITTEE

The members of the committee and Manuel Album, as Chairman, must be commended on the fine work that they have reported in their Ad-Interim Report to the Executive Council and for the 1958 Report to the Membership at the Annual Meeting. Their compiling of dental and medical journals for the Abstract Section of the JOURNAL OF DENTISTRY FOR CHILDREN was very thorough and there should be many articles of interest to our general membership.

The suggestion of promoting the interest of dental students in our Society by urging school bulletins to send articles to our JOURNAL might well be acted up by our Editor.

Before going into the next part of this Reference Committee Report, we would like to quote Article IV, New Section 2 of the By-Laws of the American Society of Dentistry for Children Constitution. (Recently changed at the 1957 Annual Meeting at Miami Beach.) "There shall be an Editorial and Publications Commission of three members elected by the Executive Council, one for one year, one for two years, and one for three years, and thereafter, the President shall appoint one each year for three years, which shall be the term of this office. This commission shall act in an advisory capacity to the Editor of the JOURNAL and shall assist the Editor in gathering material suitable for publication in the JOURNAL OF DENTISTRY FOR CHILDREN. It shall examine and recommend on the cost of the JOURNAL and shall establish the policy on advertisements suitable for insertion in the JOURNAL, based upon standards set by the American Association of Dental Editors. This commission shall also establish the scale of cost of these advertisements."

The Ad-Interim Report of the Editorial and Publications Committee has very ably dealt with the duties of assisting and cooperating with the Editor of the JOURNAL in securing and editing articles for publications, and examining and recommending on the cost of the JOURNAL and establishing advertising policy. However, this com-

mittee, to our knowledge, has not reported on the establishment of the cost of advertising in the JOURNAL. To our knowledge, the cost of advertising was set quite some time ago and has not recently been revised. An investigation and revision of the cost of advertising in the JOURNAL OF DENTISTRY FOR CHILDREN is one of our strong recommendations to the Editorial and Publications Committee.

In the last several years, reports of the annual meeting committees have pointed out the necessity and the advantage of having a national committee in authority to examine advertising costs and have advertising in the annual meeting program procured and promoted through a national committee. Up to this point, the Executive Council has voted that local committees handle advertising, as well as all convention functions. Since the Editorial and Publications Committee has the duty of scaling costs of advertising for the JOURNAL, it is also the recommendation of the Reference Committee that the Editorial and Publications Committee make a study of advertising and scale of costs for the program issue of the annual meeting and recommend that this advertising problem, along with securing ads, be assigned to a national agency for both the JOURNAL and the annual meeting program. This recommendation does not necessitate an increase in the amount of advertising to be carried in the JOURNAL, nor does it obviate the necessity of the Local Arrangements Committee publishing the annual meeting program.

It is our recommendation that the Report of the Editorial and Publications Committee be accepted as presented and continued during the next year. We recommend that an investigation and revision in the scale of costs of advertising in the JOURNAL OF DENTISTRY FOR CHILDREN be made. We also suggest that the Editorial and Publications Committee make a study of advertising and scale of costs for the program issue of the annual meeting and recommend that this advertising problem, along with the securing of ads, be assigned to a national agency.

The committee welcomes comments from the general membership and is most anxious to serve the Editor and the JOURNAL to the end that the American Society of Dentistry for Children continue to enjoy its prosperous growth.

Respectfully submitted,

LAWRENCE BURDGE
PAUL WEBER
VICTOR LENCHNER, *Chairman*

Dr. Lenchner moved (seconded by Dr. Freedman) that: THE REFERENCE REPORT ON THE EDITORIAL AND PUBLICATIONS COMMITTEE REPORT BE ACCEPTED. The motion was passed.

Dr. Lawrence Burdge presented the Revised Budget Committee Report (as included in the Executive Council Minutes).

Dr. Burdge moved (seconded by Dr. Addelston) that: THE REPORT OF THE REVISED BUDGET BE ADOPTED. The motion was passed.

REFERENCE COMMITTEE REPORT ON THE BUDGET COMMITTEE

The Budget Committee, by very careful allocation of funds available within our present dues structure, has developed a balanced budget for 1958-59. It is, however, easy to see that any major unforeseen expense, such as new or expanded committee activities, could easily result in a deficit. There is little in the budget to cushion against such contingencies.

The Budget Committee is to be commended for its diligence in so carefully allocating the Society's income to the vital and constructive functions of the organization.

Respectfully submitted,

WILLIAM E. BROWN
ALFRED E. SEYLER
C. FRANK TUMA, *Chairman*

Reference Committee Report on the Membership Committee

The Reference Committee commends the work accomplished by the Membership Committee through its Chairman, Dr. William E. Brown. The problem of student membership, including the method of securing such memberships, the mailing of the Journal and the cost, has been followed diligently and with success. It is hoped that the cost can be arranged near the average of $1.77 per student member, as suggested in the report.

The long-range program may need to be changed and improved as the problems are presented to the Executive Council each year and the program expanded by the committee.

The objective to increase regular membership could be stimulated and all possible assistance given the local units in this endeavor by the Membership Committee and the American Society of Dentistry for Children.

The Reference Committee is in accord with the recommendations suggested by the Membership Committee as follows:

1. That the Executive Council discuss and assist in the problems of the Membership Committee as presented each year by the Committee and its Chairman.
2. That the plans for securing new student members should be followed through each year by the new chairman, and the vice-president of A.S.D.C.
3. A.S.D.C. should assist the local units in any possible way in this problem of membership.
4. That the regular membership campaign be conducted through the local units, at this time, instead of on a national basis.

The Reference Committee realizes the tremendous effort and work of the chairmen of the Membership Committee during the past two years and again extends its appreciation to the Committee and its chairman for the continuation of this important work.

Membership is the vital force of an organization. The Reference Committee requests that you accept the report and recommendations as submitted by the Membership Committee, and that the Executive Council evaluate and assist the activities of this committee yearly.

Respectfully submitted,

David Law
Lawrence Burdge
Paul M. Weber, *Chairman*

Dr. Weber moved (seconded by Dr. Freedman) that: THE REFERENCE COMMITTEE REPORT ON THE MEMBERSHIP COMMITTEE BE ACCEPTED. The motion was passed.

Reference Committee Report on the Professional Relations Committee

The Professional Relations Committee received communications from the Academy of Dentistry for the Handicapped during the past year expressing its desire to utilize the Journal of Dentistry for Children as its official organ. Specifically, this would include: (1) using the Academy's name in the Journal, (2) having a representative of the Academy on the Editorial Board, (3) publication of articles dealing with dentistry for the handicapped, (4) publication of notices and transactions of the Academy meetings.

The Reference Committee recommends that the Editor of the Journal continue his present policy of publishing notices, official proceedings and papers of the Academy of Dentistry for the Handicapped. This policy was made known to the Academy several years ago, and in the recent past, a number of articles on dentistry for the handicapped have been published.

The Committee commends highly the Chairman, Curtis Hester, for his persistent,

pleasant methods to secure closer working relationships with the American Academy of Pediatrics, the American Association of Orthodontists, and the Academy of Dentistry for the Handicapped. These better relationships surely will provide better dental care for the child patients of the future.

Respectfully submitted,

HENRY WILBUR
VICTOR LENCHNER
WILLIAM E. BROWN, *Chairman*

Dr. Brown moved (seconded by Dr. Tuma) that: THE REFERENCE COMMITTEE REPORT ON THE PROFESSIONAL RELATIONS COMMITTEE REPORT BE ACCEPTED. The motion was passed.

REFERENCE COMMITTEE REPORT ON THE PUBLIC RELATIONS AND PUBLICITY COMMITTEE

I take note of the fact that the main project of the Public Relations and Publicity Committee during the past year was the production of the pamphlet "Healthy Teeth —A Happier School Child." This pamphlet was aimed at pre-school children and is a corollary to pointers for parents. The pamphlet is now available through normal A.D.A. channels. The Reference Committee further notes that the committee is currently working with Perry Sandell on the production of signs for waiting rooms while the child patient is being treated. The Reference Committee commends this committee for its efforts during the year and takes note of the recommendation of this committee "to make the chairmanship of this committee a two-year appointment because of the nature of the work." The Reference Committee recommends that this organization accept this recommendation.

Respectfully submitted,

HAROLD K. ADDELSTON, *Chairman*

Dr. Addelston moved (seconded by Dr. Kauffmann) that: THE REFERENCE COMMITTEE REPORT ON THE PUBLIC RELATIONS AND PUBLICITY COMMITTEE BE ADOPTED. The motion was passed.

Dr. Kauffmann asked if it would be possible for a statement to appear in the JOURNAL indicating that all members are welcome to attend the Executive Council Meeting. Dr. Anderson indicated that the membership is always welcome to attend the meeting of the Executive Council; however, it is often necessary to limit discussion because of the size of the group.

REFERENCE COMMITTEE REPORT ON THE STATE UNITS COMMITTEE

The Reference Committee is highly impressed by the activities of the State Units Committee during the past year and wishes herewith to compliment its Chairman, Dr. Harold K. Addelston. The committee has indeed completed its objective of securing a report from each state unit and the persistent, but yet pleasant, methods of accomplishing this mission are to be commended.

The Constitutional Amendment, passed at the 1958 Annual Meeting, to divide the Membership and State Units Committees has been demonstrated during the past year to have been a wise and forward looking move. The dividends derived from this action surely will appear in the future as an increase in membership and a closer bond between each unit and the parent body.

The Reference Committee has two recommendations: (1) the policy to secure yearly reports from each state unit should be continued, (2) after a thorough study of the reports from each state unit which have been accumulated, thoughtful suggestions should be developed, which then should be transmitted to each unit to aid in the development of programs and membership campaigns. Through these meth-

ods, it is reasonable to expect that unit officers will be stimulated to greater activity and the A.S.D.C. as a whole will become more alive and meaningful.

Respectfully submitted,

RALPH E. MCDONALD
ALFRED E. SEYLER
WILLIAM E. BROWN, *Chairman*

Dr. Brown moved (seconded by Dr. Freedman) that: THE REFERENCE COMMITTEE REPORT ON THE STATE UNITS COMMITTEE REPORT BE ACCEPTED. The motion was passed.

REFERENCE COMMITTEE REPORT ON THE AMERICAN BOARD OF PEDODONTICS

The Annual Report of the American Board of Pedodontics gives a complete account of the finances and resolutions passed by the Board up to their Annual Meeting, held July 28-31, 1958.

There are eight (8) resolutions dealing with increases in examination fees ($125 to $200):

1. A fee of $50 for each area of examination to be re-taken or was deferred by the Board.
2. Annual certificate renewal fee ($3 to $5).
3. A new classification of members known as "Affiliate Members" to include qualified dentists of Canadian citizenship.
4. An inquiry to the American Dental Association on Dental Education concerning candidates who have received a part, or all, of their training in community service clinics.
5. A notice to candidates who must submit case histories at the 1959 examination.
6. Ralph E. McDonald to represent the Board at this meeting.
7. The 1959 Board Meeting and Examination to be held December 14-17, 1959, at Northwestern University, School of Dentistry, Chicago, Illinois, and
8. The following officers elected to serve until the next meeting of the Board: Sidney I. Kohn, Chairman; Kenneth A. Easlick, Vice-Chairman; Ralph L. Ireland, Secretary-Treasurer.

The Reference Committee wishes to express its gratitude for such a complete report of the activities of the Board and moves that the resolutions presented be approved and concurred in by the Executive Council and the Membership of A.S.D.C.

A copy of the Auditor's Report is given for the fiscal years of 1956, 1957 and 1958. It is noted that there was an excess of receipts over disbursements for the fiscal year, 1957-58, of only $607.64. Part of these receipts is from the grant requested and given by A.S.D.C. of $1,000. A.S.D.C. has subsidized the Board for the past two years to the extent of $100 each year.

For the fiscal year of 1958-59, the Board has NOT asked for any subsidy from A.S.D.C. but may need further subsidy before or after the 1959 Annual Meeting of A.S.D.C.

The Reference Committee, realizing the honest efforts and sincere desires of the Board to become self-supporting, wishes to express its complete sympathy and understanding of the Board's action. However, this committee requests that the Executive Council and members of A.S.D.C., accord a vote of confidence and integrity of operation for continuance of the Board's position in the specialty field, by proposing that the Budget Committee of A.S.D.C. include the item of $500 for the American Board of Pedodontics for the fiscal year of 1958-59. The committee requests that you support and grant this request.

Respectfully submitted,

LAWRENCE R. BURDGE
RALPH E. MCDONALD
PAUL M. WEBER, *Chairman*

Dr. Weber moved (seconded by Dr. Tuma) that: THE REFERENCE COMMITTEE REPORT ON THE AMERICAN BOARD OF PEDODONTICS BE ACCEPTED. The motion was passed.

Final *Report of the Joint Liaison Committee with the American Academy of Pediatrics* (report appears in the Minutes of the Executive Council Meeting).

Dr. Brown moved (seconded by Dr. Hallberg) that: THE REPORT OF THE JOINT LIAISON COMMITTEE WITH THE AMERICAN ACADEMY OF PEDIATRICS BE ACCEPTED. The motion was passed.

Report of the Auditing Committee

(Report appears in the Minutes of the Executive Council Meeting.)

Dr. Tuma moved (seconded by Dr. Richards) that: THE REPORT OF THE AUDITING COMMITTEE BE ACCEPTED. The motion was passed.

Reference Committee Report on the Editor's Report

It is indeed gratifying to note the prompt publishing of the Journal according to deadlines for the year 1958. The Editor has worked diligently to meet the deadlines and for this, he should be complimented highly. The past criticism of tardiness of the Journal certainly should be stilled for the present.

The Editor has explained the delay in publishing a copy of the Revised Constitution and By-Laws, because of the possibility of additional amendments at the Annual Meeting in Dallas. Because of the magnitude of these proposed amendments, the Editor's decision to delay is a wise one. Since it has been approximately four years since the Constitution and By-Laws was last published, it is urged that a current revised copy be published as soon as possible after the 1958 Annual Meeting, even though significant future amendments may be forthcoming at the 1959 Annual Meeting.

The switch from Waverly Press to The Ovid Bell Press, Inc., was carried out smoothly. The excellent general format of the Journal has not been altered and A.S.D.C. has saved $354.00 so far this year. It is urged that the contract with The Ovid Bell Press, Inc., be renewed for another year.

The advertising contract with Waverly Press was terminated at the end of 1957 and was assigned to the Business Manager. This change has resulted in an increase in income and the current arrangements should be continued.

For the most part, the content of the Journal has been of high quality and has included many diversified subjects that should be of interest to all members of A.S.D.C. The recommendation to establish an "Abstract Section" has been followed and this section provides an excellent addition to the Journal.

The Reference Committee should again like to commend the Editor for his never-ending efforts and the quality of our publication.

Respectfully submitted,

David Law
C. Frank Tuma
William E. Brown, *Chairman*

Dr. Brown moved (seconded by Dr. Lenchner) that: THE REFERENCE COMMITTEE REPORT ON THE REPORT OF THE EDITOR BE ACCEPTED. The motion was passed.

Reference Committee Report on the Secretary's Report

To the members of the Executive Council and A.S.D.C. You have heard the Report of our Secretary, Dr. Ralph E. McDonald. Before rendering comments on his report, it is requested by the Reference Committee that you extend a rising ovation to our Secretary.

There are no words, Ralph, for us to express our humble thanks for the marvelous manner in which you have accomplished the numerous tasks of this office. You have kept the state units and officers informed, you have aided the Membership Program and in the formation of new units, and assisted all chairmen of committees, besides many other duties.

The Reference Committee moves on your recommendations:

1. That each new secretary spend time and be briefed by the outgoing secretary and the Central Office of A.S.D.C.
2. That the loss of former members be considered by the proper office and that they carry through a feasible plan to the Executive Council to follow through on this problem to hold an increase in our membership.
3. That the office of the Executive Secretary be carefully considered and that such office should be expanded to include all present problems and give added service in the form of Public Relations and to the future growth of A.S.D.C. This would pay dividends of substantial progress, increase membership and make for a better organization.

Again, the Reference Committee commends the excellent report and work of our Secretary and requests that the Executive Council not just accept and file this report, but that the various recommendations be followed and acted upon by the proper committees.

Respectfully submitted,

ALFRED E. SEYLER
VICTOR LENCHNER
PAUL M. WEBER, *Chairman*

Dr. Weber moved (seconded by Dr. Rabinowitch) that: THE REFERENCE COMMITTEE REPORT ON THE SECRETARY'S REPORT BE ACCEPTED. The motion was passed.

OLD BUSINESS

None.

NEW BUSINESS

REPORT OF THE NOMINATING COMMITTEE

President-Elect—William E. Brown
Vice-President—James H. Simmons
Secretary-Treasurer—Ralph E. McDonald
Executive Council:
Manuel M. Album—2 Years
Paul M. Weber—2 Years

Respectfully submitted,

WILLARD HUNICUTT
HENRY WILBUR
LAWRENCE BURDGE, *Chairman*

The Chairman then asked for further nominees. There being none, Dr. Noonan moved that: THE SECRETARY BE INSTRUCTED TO CAST A UNANIMOUS BALLOT. The motion was seconded and passed.

REFERENCE COMMITTEE REPORT ON THE SCHOOLS AND DENTAL BOARDS COMMITTEE

The Schools and Dental Boards Committee, because of an inactivity and in accordance with Constitutional requirements, has enjoyed the appointment of a new chairman, Douglas J. Sanders. This appointment, made in mid-summer, left insufficient time to organize and to actively function.

It is hoped that one year hence a report of worthwhile accomplishments can be made.

Respectfully submitted,

ALFRED E. SEYLER
HENRY WILBUR
C. FRANK TUMA, *Chairman*

REFERENCE COMMITTEE REPORT ON THE AMERICAN BOARD LIAISON COMMITTEE

Your American Board Liaison Committee is very proud to report its unanimous approval and its recommendation of William E. Brown to the American Board of Pedodontics.

Respectfully submitted,

MODE R. PERRY
ALFRED E. SEYLER
C. FRANK TUMA, *Chairman*

Dr. Tuma moved (seconded by Dr. Freedman) that: THE REFERENCE COMMITTEE REPORT ON THE AMERICAN BOARD LIAISON COMMITTEE BE ACCEPTED. The motion was passed.

President Anderson then introduced Dr. John Brauer, who is retiring from the American Board of Pedodontics.

Dr. Carter commented that he felt we should have a new directory prepared in the very near future. Dr. Kauffmann commented that we might include the new Constitution and By-Laws in the directory.

There being no other New Business, Dr. Rabinowitch moved (seconded by Dr. Posnick) that: THE MEETING BE ADJOURNED—4:40 P.M. The motion was passed.

Abstracts

GROWTH CHANGES OF THE DENTAL ARCHES—A LONGITUDINAL STUDY. C. F. A. Moorrees, J. Canad. D. A., 24:449-457. Aug. 1958.

The purpose of the study was to measure breadth, length and circumference of the dental arches during the growth and developmental period of children. Serial dental casts of 184 North American white children were studied.

Arch length was obtained by measuring the distance between a line tangent to the labial surfaces of the central incisors and a line connecting the most dorsal points on the distal surfaces of the primary second molars. Arch breadth was obtained by measuring the distance between the crown tips of the primary or permanent canines. Arch circumference was obtained by measuring the length of the curved line passing over the buccal cusps or the incisal edges of the teeth from the distal surface of the primary left second molar.

The author observed that changes in arch length and the intercanine distance between 3 and 5 years in both the maxillary and mandibular dentition, are small and compensated each other. Between 5 and 10 years of age when the permanent maxillary and mandibular central and lateral incisors emerge, the intercanine distance increases approximately 3 mm.; the decrease in arch length, beginning at 4 years of age, continues until the age of 6. Thereafter, arch length increases, especially in the maxilla (1.0 mm.), as a result of greater labial inclination of the permanent incisors. Beginning at 10 years and continuing until 14 years, the arch length decreases once more (1.55 mm. in the maxilla and 2.55 mm. in the mandible). The maxillary intercanine distance increases during a third increment phase which starts shortly after 10 years of age, adding approximately 2 mm. to this distance. In the mandible the intercanine distance decreases slightly between 10 and 14 years of age. The mean increase in the circumference of the maxillary dental arch between 5 and 18 years is very small (+ 1.33 mm. in the males and + 0.5 mm. in females). In the mandible, the arch circumference is 3.4 mm. and 4.5 mm. smaller in the average male and female respectively, at 18 years than at 5 years of age.

When observation is contemplated during the growth and developmental period, the examinations should be conducted according to a biologic time schedule instead of a chronologic one, because the changes in the breadth and length of the dental arches are associated in a general way with the emergence of the permanent teeth.

R. E. McDONALD

STUDIES ON MINERALIZED DENTAL TISSUES XII MICRORADIOGRAPH STUDY OF CARIES IN DECIDUOUS TEETH. G. Bergman, E. Hammarlundessler, L. Lysell. Acta Odont. Scand., 16:113-126, August 1958.

Eighty primary teeth with carious lesions at different stages were studied for the purpose of demonstrating the appearance of caries in the pre- and postnatal enamel and dentin. Transmitted light as well as a microradiographic technic was employed using ground sections from each tooth section, 80 to 100 microns thick. The results of this study indicated that the carious lesions of primary teeth are found to have the same microradiographic appearance as those of permanent teeth. Alteration of this pattern at the neonatal line was highly

uncommon (only two) in contrast to previous reports of "temporary arrest of caries at the neonatal line."

GORDON H. ROVELSTAD

NORMAL DEVELOPMENT OF TOOTH BUDS CULTURED IN VITRO. W. Lefkowitz and P. Swayne. J. D. Res., 37:1100-1114, 1958.

A total of 348 tooth bud explants dissected from 19 day old rat fetuses were cultured in vitro by technics utilizing varied media. Histological examination after twelve days of cultivation for explants cultured as long as 36 days were studied for morphological changes. A limited period of normal development in vitro was accomplished although calcification of preformed enamel and dentin matrix could not be demonstrated. The latter suggests a relationship between calcification and subsequent matrix formation. From these studies a simple and effective method for in vitro cultivation of tooth buds is presented that provides an acceptable experimental technic for testing many hypotheses.

GORDON H. ROVELSTAD

ACUTE LEUKEMIA AND PREGNANCY. N. Mulla. Am. J. Obst. and Gynec., 75: 1282-1285, June 1958.

Interruption of pregnancy in women with leukemia is of no benefit and may hasten mother's death. Forty-seven cases were reviewed by the author. Only seven of these forty-seven had severe post partum hemorrhage and this was fatal in only one case. Leukemia is a definite cause of premature birth, but a leukemic mother has not been known to give birth to a leukemic child.

At autopsy several specimens showed marked infiltration of the mother's organs, but no evidence that leukemic cells pass the placental barrier.

The ages of women ranged from 15 to 45 years. Mortality rate of the mothers was 100 per cent. The most common cause of death was exhaustion. Four died during pregnancy, five during parturition, 36 survived over 14 days after delivery. One for 36 days, and another who had eclampsia had a 21-month remission with satisfactory health.

MANUEL M. ALBUM

EFFECT OF POST PARTUM SEPARATION OF MOTHER AND KID ON MATERNAL CARE IN DOMESTIC GOAT. L. Herscher, A. U. Moore, J. B. Richmond. Science, 128: 1342-1343, November 28, 1958.

Twenty-four goat mothers were separated from their newborn kids for one hour immediately after birth. Two months later these kids were observed to nurse their own kids less and alien kids more than non-separated mothers. Separation of mother and young in half of the flock also resulted in abnormal rejecting behavior in some non-separated mothers. Similar experimental analysis of the behavior of another herd in which none of the kids had been separated at birth revealed no instances of rejecting or indiscriminate behavior such as occurred in the test group.

GORDON H. ROVELSTAD

VARIABILITY OF TOOTH FORMATION IN MAN. S. M. Garn, A. B. Lewis, and S. L. Polacheck. Science 128:1510, December 12, 1958.

Statistical analysis of the data on tooth development of 255 Ohio born children surveyed by serial oblique-jaw x-rays demonstrate a much wider age range of the fourteen tooth-stage comparisons recorded than previously reported. This finding suggests that values for tooth formation and development commonly given greatly underestimates the variability that exists in the normal population.

GORDON H. ROVELSTAD

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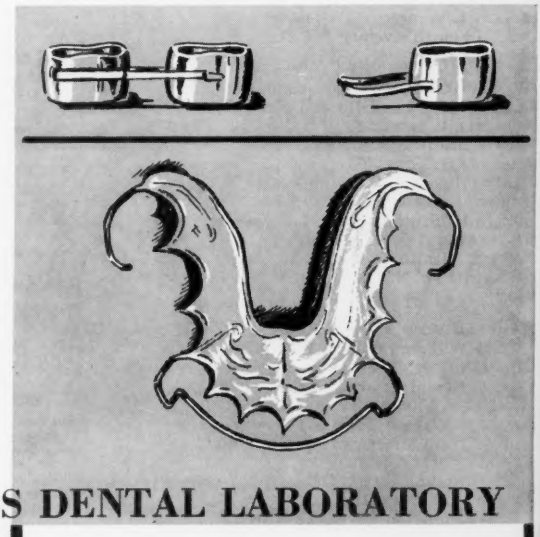

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